TOA TECHNOLOGIES

Release Notes

for

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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 versions 4.5.0 through 4.5.4 as compared to the previous versions. It also provides brief overview of minor changes and issues.

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 API
Context	An ETAdirect or API screen showing all available properties and action links
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
Not scheduled	An activity not assigned to a specific date
Not ordered	An activity with an unspecified order of execution in a queue, 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 queue, 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
Queue (Route)	A list of activities assigned to a resource for a specific date, or a list of non-scheduled activities assigned to a resource
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
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 4.5.0

2.1 Changes Overview

- Linked Activities
- Linked Properties
- Reoptimization
- Inventory type support
- Non-serialized inventory support
- Required inventory support
- Forecasting
- Nearby activities search
- Login Portal
- HTML5 DOCTYPE used
- Chrome compatibility improved
- Internet Explorer 7 compatibility improved
- iPad compatibility improved
- Manage application usability improved
- 'View' function adjusted
- Zoom button in the activities view redesigned
- Search fields style standardized
- Search string length restricted
- List View – column header hint added
- Notification firewall removed from manage application
- Improved recognition of right-to-left languages
- Resource hint now shows work zones
- 'Main resource' option improved
- 'My display' settings improved
- 'Add work zone' action improved
- Resource history report improvement
- Schedule report creation for resources having no ID
- Message reports displayed in user's time zone
- 'Auto-routing results' dashboard report improvement
- Reports screen design improved
- Disabling main menu items no longer disables other actions
- Quota history and close time history filters improved
- Internet Explorer 7-9: double-clicking inventory no longer causes unusual behavior
- Internet Explorer 8: 'Visit bundling keys' functionality improved
- Add activity' action improvements
- Support of not-ordered and non-scheduled activities improved

- 'Reopen Activity' window size optimized
- Illogic teamwork creation resolved
- Adding or editing activity with SLA in the past now possible
- Mass activity creation for a single day possible
- Repeating activity start action improvement
- Activities color-coded consistently in activities view and search results
- 'Activity Search' window redesigned
- Activity alert color-code improved
- 'Move activity' now accompanied with correct hints
- Resource selected for activity move remains on screen after conditions change
- Not-ordered activities move improved
- 'Move activity' in Overnight improved
- Move of large groups including visits improved
- Warning message on activity reschedule reworded
- Activity move within route improved
- Permission improvements
- Expand/collapse buttons removed from the Permissions Tree in the Search Mode
- Group action Permissions removed
- 'Property contexts list' permissions removed
- 'Reoptimization' permission added
- 'Status' checkbox added to the 'Non-working Reason' screen
- 'Add Work Skill' function improved
- Work Skill Groups/Capacity Categories/Work Skill Conditions usability issues addressed
- Property editing restrictions removed
- 'Inventory type' property removed
- Mandatory 'Label' field added to 'Login Policy' screen
- Option of activity property style customization added
- 'End-of-line' marker added to the 'Identify activity by' context layout structure
- Filter improvements
- Shifts label length warning added
- 'Routing plan' window redesigned
- 'Default Rows Number in List' parameter removed as obsolete
- API Configuration screen implemented
- Activity move usability improved
- 'Community' window reorganized
- 'Community' window resize functions properly
- 'Community' window functionality improvement
- SmartCollaboration disabled in offline mode

- 'Start Chat' actions now available from resource and activity hint
- SmartCollaboration drop-down menu improved in Mobility Application
- Support of user logins containing special symbols
- Activity hint links in Map View improved
- Map behavior improved for resources with only non-scheduled activities
- Activities with invalid coordinates marked in red everywhere in Map View
- Activities with invalid coordinates shown on Map
- 'Street View' Available in Mobility Application
- Map displayed with only resource's GPS coordinates available
- 'Hide map' button added to map display in Activity Details in Manage Application
- Activities with 'Define duration manually' option now included in duration statistics
- 'Points' field now updated with 'set_property' method
- Tile mode introduced for Mobility Application
- Mobility Application screens behavior optimized
- Login policy rules adjusted
- Surefox compatibility increased
- Picture capture functionality improved
- Activity reorder improved
- Surefox and Firefox: 'Change calendar details' functionality improved
- Actual operation time recorded in activity history
- Mobility synchronization errors logged in activity history
- Non-scheduled activity start implemented
- Resource Management API – login policy label used
- SOAP API authentication structure changed
- Inbound API – required inventory supported
- Activity Management API, Mobile Client API – required inventories supported

2.2 Linked Activities

In version 4.5 updates to Linked Activities functionality have been implemented, which provided more flexibility in defining activity dependencies and constraints.

In previous ETAdirect versions there were three types of dependencies for linking activities, which helped to identify the order in which the work needed to take its course:

- *that should be finished before*
- *that should be started after*
- *that should be started simultaneously*

In version 4.5 Linked Activity types feature with the following dependencies has been introduced:

- *start-to-start*
- *finish-to-start*
- *simultaneous*
- *related*

It offers a more sophisticated way of setting-up the order of multi-step jobs and provides the following additional settings:

- *minimal and maximal time interval can be adjusted*
- *assignment and scheduling constraints*

The main goal behind the updates to this functionality is to:

- support new types of activity links
- allow to view a whole chain of the linked activities within the same view
- provide a simple and flexible method to operate with activity links

This feature will come in handy for handling multi-step tasks and keeping the process organized to avoid misunderstandings and delays.

Detailed information can be found in the Linked Activities manual.

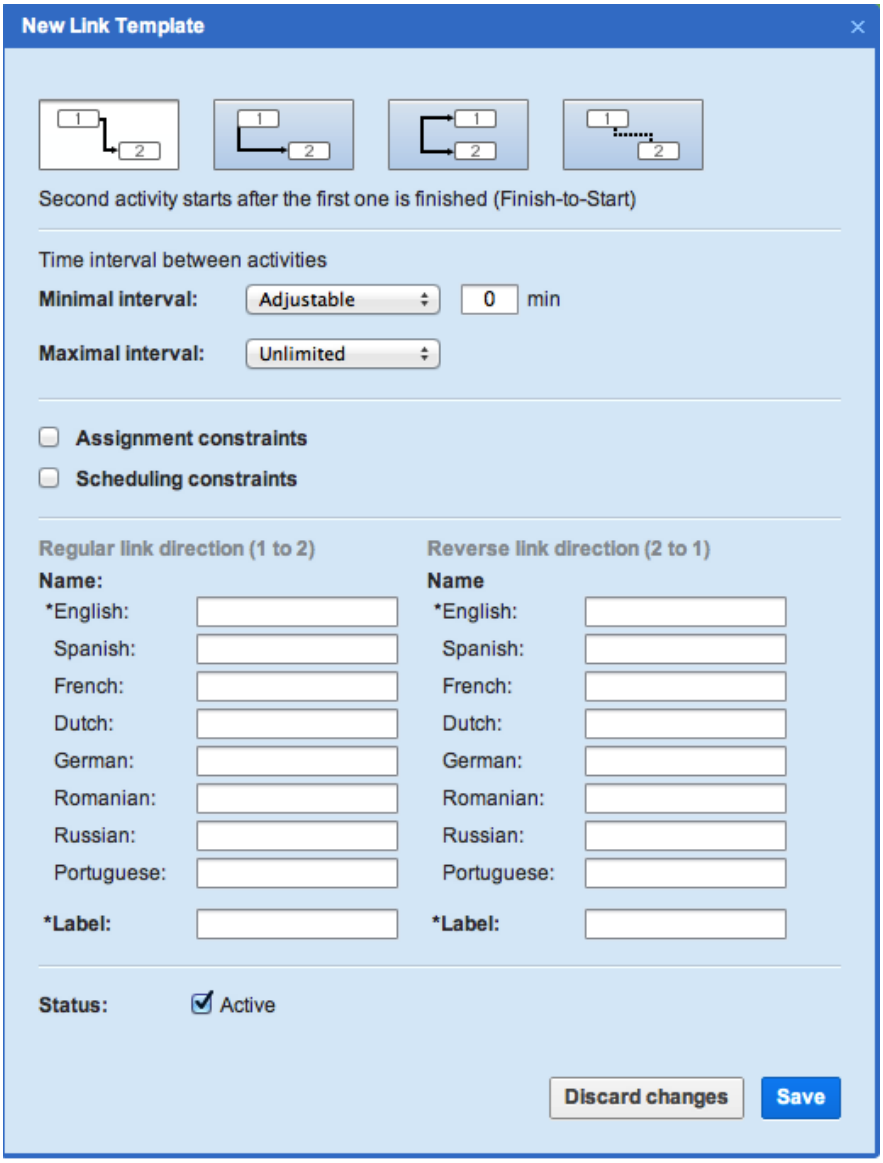


Figure 1: 'New Link Template' window

2.3 Linked Properties

In version 4.5 Linked Properties functionality has been introduced. It appeared as a result of an improvement of an existing tool, which was a part of Display Layout.

Linked properties allows to set relations between properties and fields. Visibility and mandatory can be dependent on other property value.

The new feature provides flexible configuration both structure and GUI wise. From now on it will be easier to make changes in related fields without involving additional custom development for ETAdirect.

Structural changes

Previously, Linked Properties functionality only offered a limited amount of conditions. In version 4.5 the amount of conditions is unlimited, which ties tightly with the GUI changes.

GUI changes

When there was a set limit of conditions the visibility table included a corresponding amount of separate

sections. Now, it includes just one column and an 'Add New Condition' button, which, when clicked reveals the variety of conditions (Figure 2).

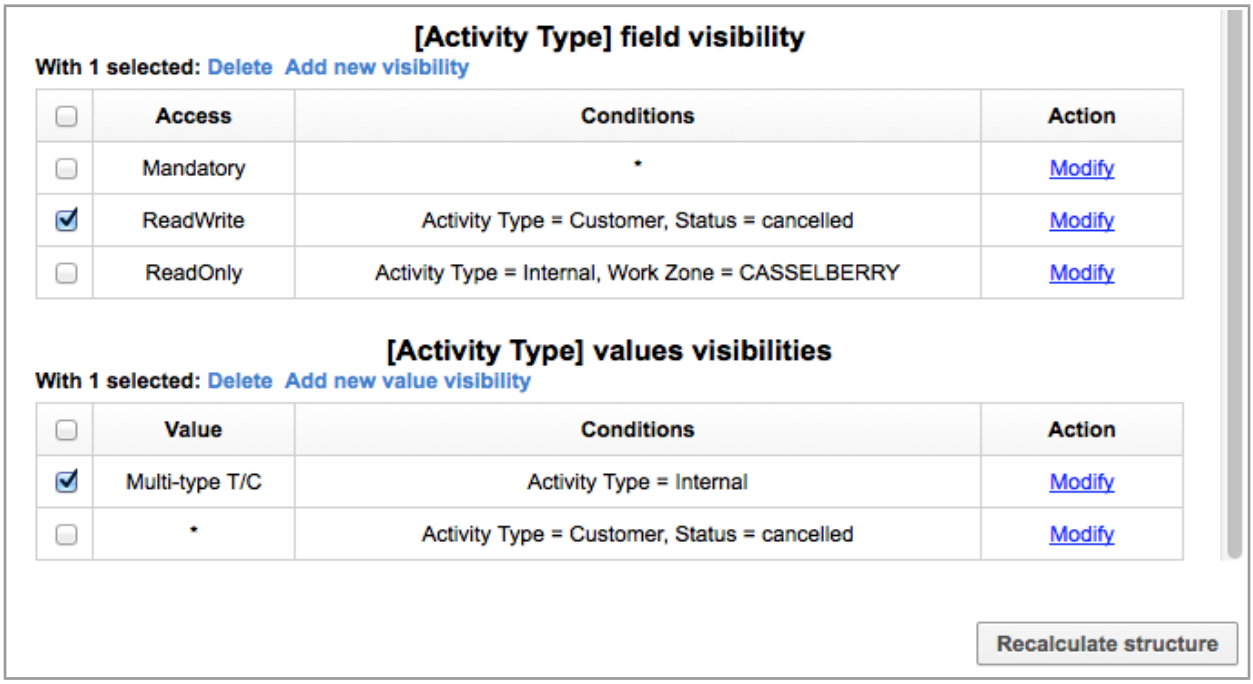


Figure 2: New 'Conditions' section of 'Context layout structure' screen

2.4 Reoptimization

In ETAdirect version 4.5 the Routing functionality has been expanded by adding the Reoptimization feature – a feature similar to Dynamic Routing but with the possibility to unassign activities. An activity previously assigned to a certain resource, whether by Routing or manually, can be removed in favor of a higher-priority activity.

Reoptimization may be used, for example, by utility companies which have to handle unexpected emergency situations amid the routine maintenance tasks, or by companies sometimes performing assignments requiring unique equipment which can only be found in a certain technician's inventory. Also, Reoptimization may be useful in managing buckets containing a small number of technicians with dramatically different skills – Reoptimization helps to find the most optimum solution balancing the technicians' skills, costs of activities assignment or non-assignment to a certain resource and the activities priority.

Together with the Dynamic Routing functionality offered in the previous versions, Reoptimization enhances the options of cost- and time-efficient activities assignment by correcting the routes during the day in response to conditions change. Reoptimization evaluates the already assigned activities according to the pre-defined criteria and in some cases can remove lower-priority activities from a resource's route in order to assign a higher-priority activity. The unassigned activities are either returned to the bucket or assigned to a different resource or placed in the non-scheduled pool of the original resource.

2.5 Inventory Issues

The current situation has called for a broader approach to inventory handling in ETAdirect. In response to

the actual business demands the new version now supports Non-Serialized Inventory (generic items interchangeable regardless of the manufacturer) vs. Serialized Inventory (inventory identified by the serial number unique for the company) as well as Required Inventory (inventory necessary to complete an activity of a certain type). The new features affect the following entities: inventory, activity and activity type.

For this purpose, a new entity – inventory type – has been added.

2.5.1 Inventory Type Support

The inventory type is designed to distinguish between serialized and non-serialized inventory. It can also accommodate other settings when necessary. As of ETAdirect Version 4.5 inventory types can be added and edited in 'Company Settings' → 'Inventory Types' (Figure 3).

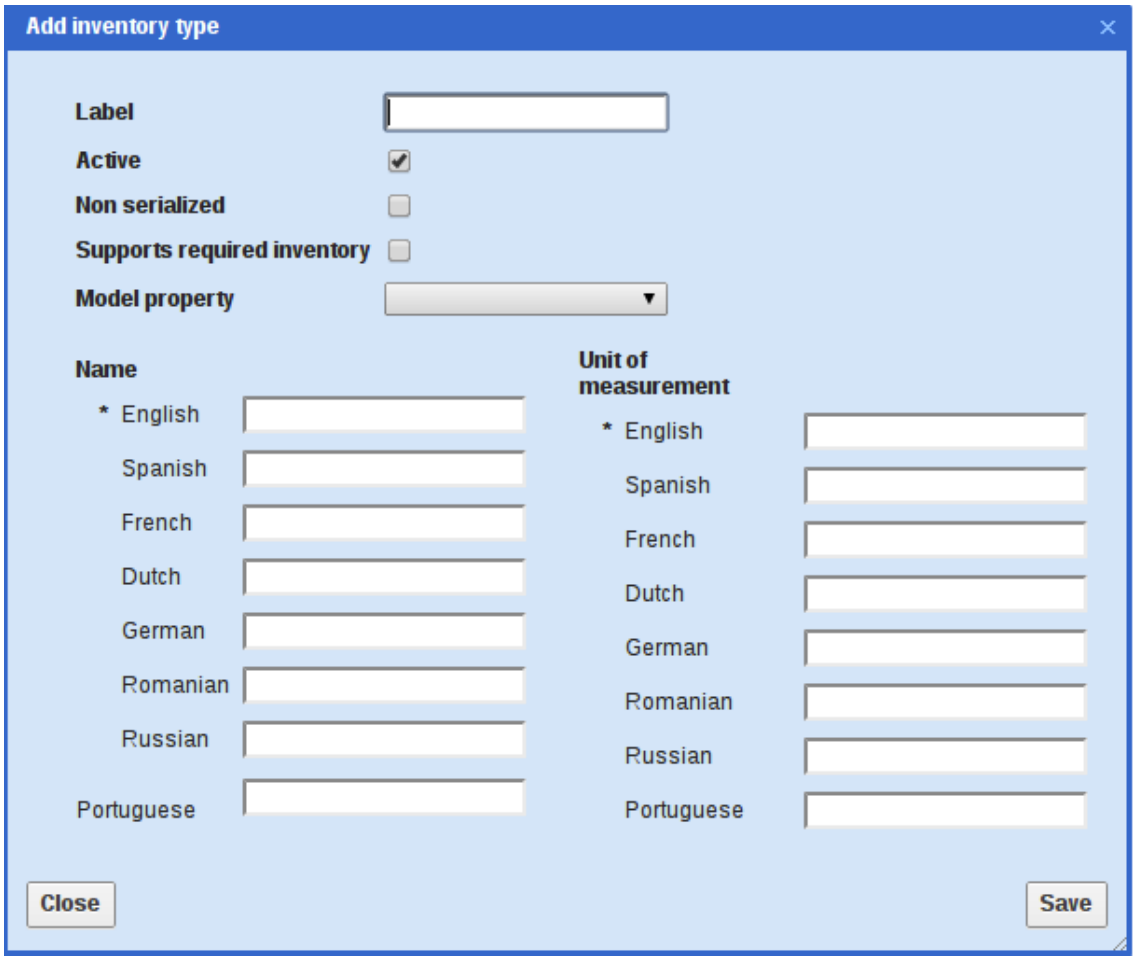


Figure 3: 'Add inventory type' window

The Inventory Type has the following fields:

- Label – a unique identification of the Inventory Type
- Active – the checkbox classifying the inventory type as active (yes) or inactive (no). Inactive inventory types are placed in the end of the 'Inventory Types' list and are not shown in the 'Select inventory type' drop-down lists
- Non-serialized – the checkbox classifying the inventory as non-serialized (yes) or serialized (no)
- Supports required inventory – the checkbox defining whether the inventory type can be used as

'required inventory'

- Model property – the drop-down list of the characteristics of the inventory model to be selected for inclusion in the inventory type
- Name – a human-friendly name used in the GUI. Name is not a mandatory field and when 'Name' is left empty the Inventory Type Label is used
- Unit of measurement – the units in which the inventory is measured (only for non-serialized inventory)

In ETAdirect new inventory types can be created with setting all above-mentioned fields. The existing inventory types can be deleted, activated or deactivated by means of a group action in the Inventory Type list.

Default inventory type is also supported for the companies not using the inventory type entity in their operations and for easier migration. The default inventory type is used for inventories added to ETAdirect by legacy applications not distinguishing inventory types.

2.5.2 Non-Serialized Inventory Support

As of version 4.5, inventories can be classified as serialized or non-serialized with the following differences between the two:

- non-serialized inventory items of the same model are interchangeable
- non-serialized inventory has quantity
- during an 'install' operation the corresponding quantity is subtracted from the non-serialized inventory in the resource's pool and new inventory is created in the 'installed' pool
- during a 'deinstall' operation the non-serialized inventory is deleted from the 'customer' pool and its quantity is added to the resource's pool. Therefore, non-serialized inventory can never be found in the 'deinstalled' pool

Non-serialized inventory in the resource's pool will have the following fields:

- resource ID – refers to the resource in whose pool the inventory is
- type ID – refers to the inventory type defined for such inventory
- quantity – the number of items of such inventory in the resource's pool

The following actions are available for non-serialized inventory in the resource's pool:

- add inventory – adding new inventory to the resource's inventory list specifying its type, model and initial quantity. When inventory with the same key (type, pool and model) already exists in the resource's pool, no new inventory is created but the inventory dialog is displayed instead where the inventory quantity can be adjusted
- edit inventory – changing the existing inventory type, model and/or quantity. Quantity can be set to zero or a negative value
- install inventory – defining some or all of the inventory as installed (only for started activities). During the 'install' operation the corresponding inventory quantity is subtracted from the resource's pool and added to the 'installed' pool. The installed inventory quantity is specified in the 'Enter installed quantity' dialog:

  quantity – the non-serialized inventory quantity installed in the activity performance. If any required inventory is specified for the activity, the 'quantity' field is filled with the inventory quantity listed in the 'Required inventory'. When no required inventory is

defined, the 'quantity' field contains '1'. The resource can change the value in the 'quantity' field to the actual number of the installed inventory items. If the entered value exceeds the inventory quantity in the resource's pool, a warning is displayed but the value is accepted

Non-serialized inventory in the 'installed' pool will have the following fields:

- activity ID – refers to the activity the inventory was used in
- type ID – refers to the inventory type defined for such inventory
- quantity – the number of items of such inventory in the 'installed' pool (equal to the value entered in the ' Enter installed quantity' dialog

The following actions are available for non-serialized inventory in the 'installed' pool:

- undo install inventory – reverts to the stated before the 'installed' action. The 'installed quantity' of inventory is added to the resource's pool or inventory is created in the resource's pool when the whole inventory of this type was deleted in the 'install' action. The inventory in the 'installed' pool is deleted.

2.5.3 Required Inventory Support

Unlike other inventory pools, required inventory is identified by type ID and model and always has quantity, even when its type ID is serialized.

Non-Serialized Required Inventory is the required inventory for which the 'is non-serialized' flag is set. It always has quantity, both in the resource's pool and the required pool and is identified by model.

Serialized Required Inventory is the required inventory for which the 'is non-serialized' flag is not set. Inventory of this type does not have quantity when it is in the resource's, customer's, 'installed' or 'deinstalled' pool, but it will have quantity in the 'required' pool. For example, when an activity requires 5 items of such inventory, the resource will have 5 separate records in his/her pool with the same type ID and model but with different serial numbers.

With the introduction of the 'Required inventory' functionality the option of defining the required inventory support has been added to the 'Add/Edit Activity Type' window as a feature which can be enabled or disabled for a certain activity type (Figure 4).

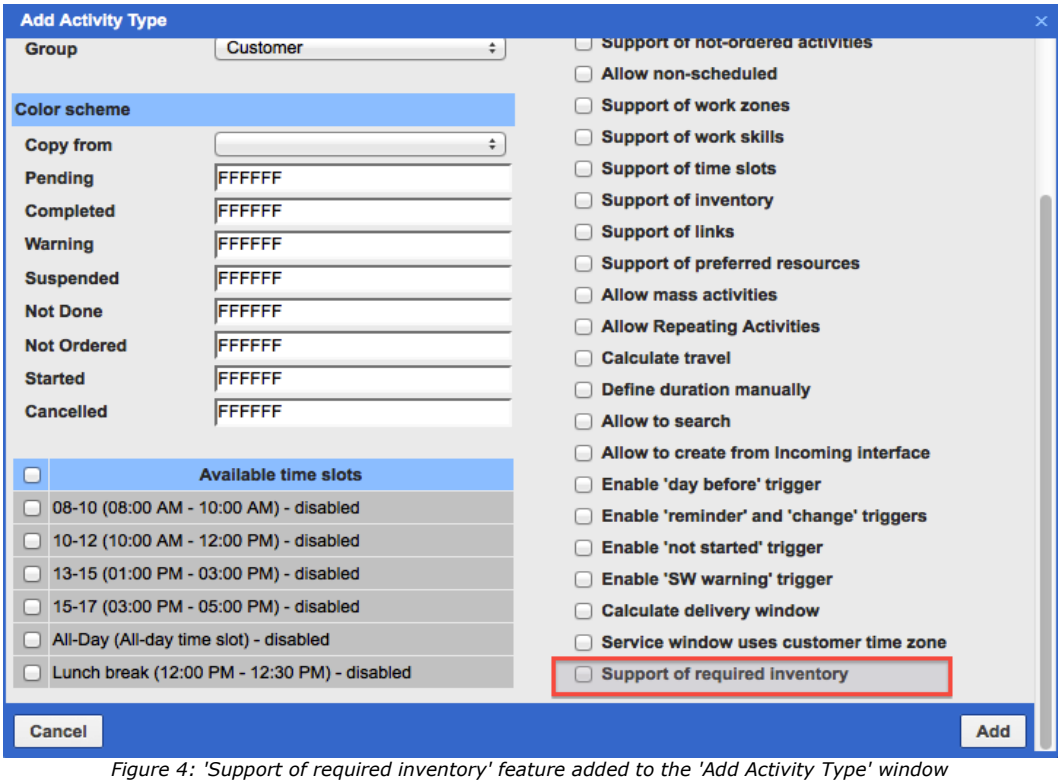


Figure 4: 'Support of required inventory' feature added to the 'Add Activity Type' window

The visibility of and access to the Required Inventory as well as the possibility of its modification is defined by the new 'Required Inventory' permissions in the 'Permissions' screen (Figure 5). These permissions can be set both for the Manage and Mobility Applications.

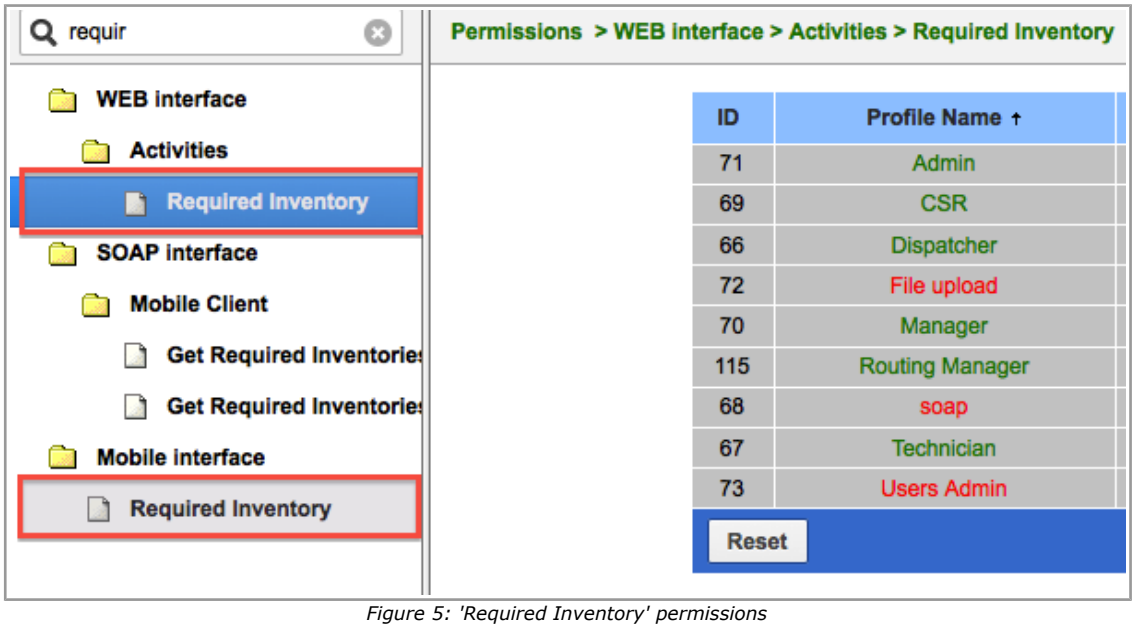


Figure 5: 'Required Inventory' permissions

The Required inventory can be viewed in the 'Inventory' tab of the 'Activity details' screen in the Manage Application (Figure 6) and in the 'Inventories List' screen in the Manage Application (Figure 7).

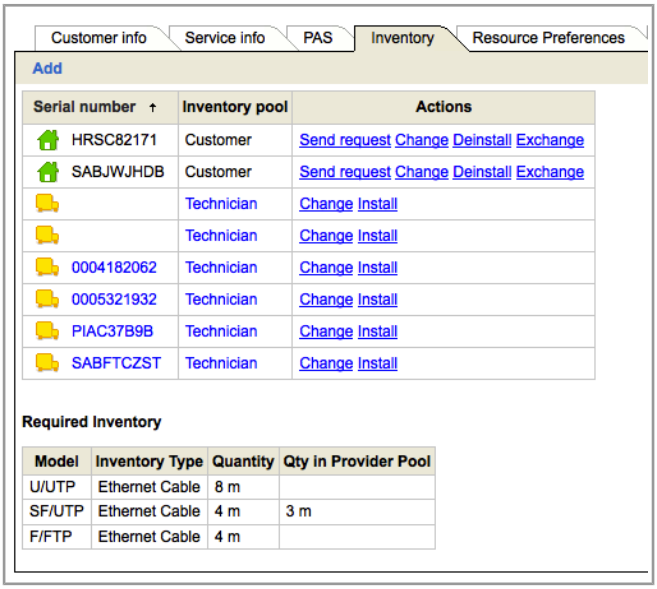


Figure 6: Required Inventory in Manage Application

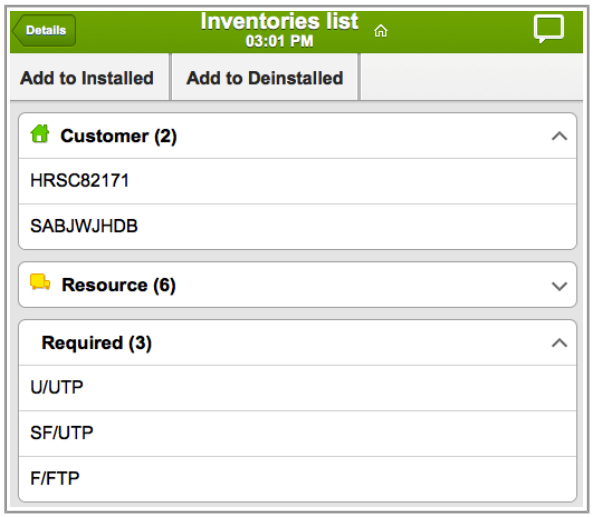


Figure 7: Required Inventory in Mobility Application

2.6 Forecasting

ETAdirect version 4.5 includes a new feature – Forecasting. This is an advanced tool allowing, on one hand, to analyze historical data and, on the other hand, to forecast the workload and plan the company capacity on the basis of historical data analysis and 'what-if' scenarios. Forecasting can be essential in planning the company performance and capacity by anticipating certain events and following certain trends. Using the Forecasting feature, a company can be more or less sure that its workforce is sufficient to meet the demand and be prepared for any demand spikes caused by various events (such as marketing campaigns, natural disasters, etc.).

While natural disasters are often hard to predict, the company can analyze its past experience of handling such situations and plan sufficient standby personnel. On the other hand, advertizing campaigns are planned ahead, and this is where Forecasting can be rather useful. For example, if a TV company offered a special Christmas package last year, the historical data would reflect a spike in the connection activities number in last December (this would be seen when the data is filtered by the Capacity Category). When any similar campaigns are planned again, the Forecasting feature can show the estimated amount of workforce needed to cover the increased demand. Therefore, the company can evaluate its in-house capacity and, when necessary, engage contractors for a short period of time while the demand lasts. At the same time, the Forecasting can predict a lull in demand in summer when people prefer to go on holidays. Therefore, the company can also plan vacations for its personnel in summer.

The Forecasting functionality is offered as a dedicated screen showing different types of data in a graphical form (line chart) (Figure 8).

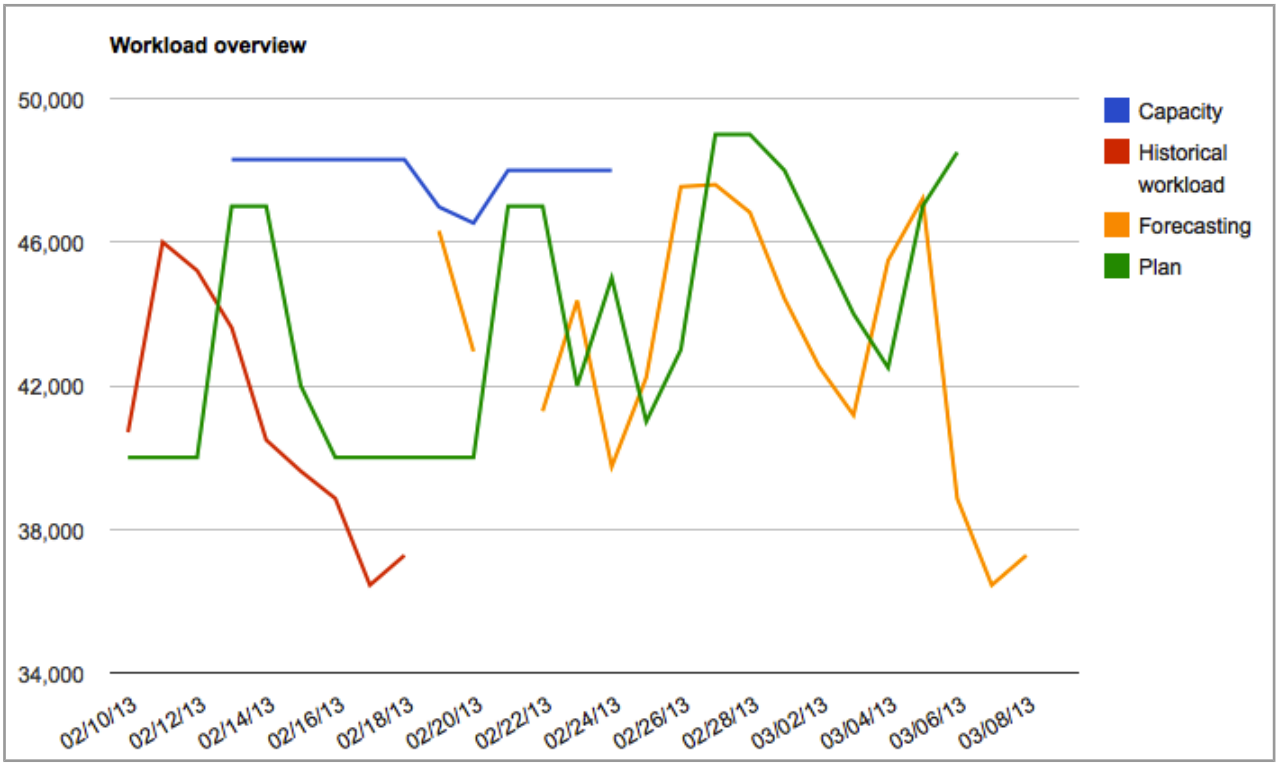


Figure 8: Forecasting chart

The Forecasting data can be exported for further analysis as a csv file or used in the Quota view.

2.7 Nearby Activities Search

As of version 4.5, ETAdirect offers a solution specifically designed for companies having no dedicated personnel for dispatching and routing – Nearby Activities Search.

The main concept of the Nearby Activities Search is letting technicians manage their own workload. The customer-facing activities are received by the system but are placed in the buckets. The technicians start their working days with empty or almost empty routes and assign jobs to themselves by means of searching the activities closest to their current locations. Simply put, a technician starting his or her working day or completing a previous assignment, can look at the map and see what he or she can do next. The map will display the pending activities closest to the technician's current location as well as show their SLA expiration time. The Nearby Activities Search returns both scheduled and non-scheduled activities, so technicians can also handle non-scheduled activities, when possible.

On the basis of such data the technician can select the next activity to be included in his or her route. The selected activity will be removed from the pending jobs pool and placed in the technician's own route where it can be handled like any other activity.

The Nearby Activities functionality is only present in the Mobility Application to be used by field personnel equipped with mobile devices. It is implemented as a dedicated 'Nearby activities' screen showing the list of the pending nearby activities and their locations on the map (Figure 9).

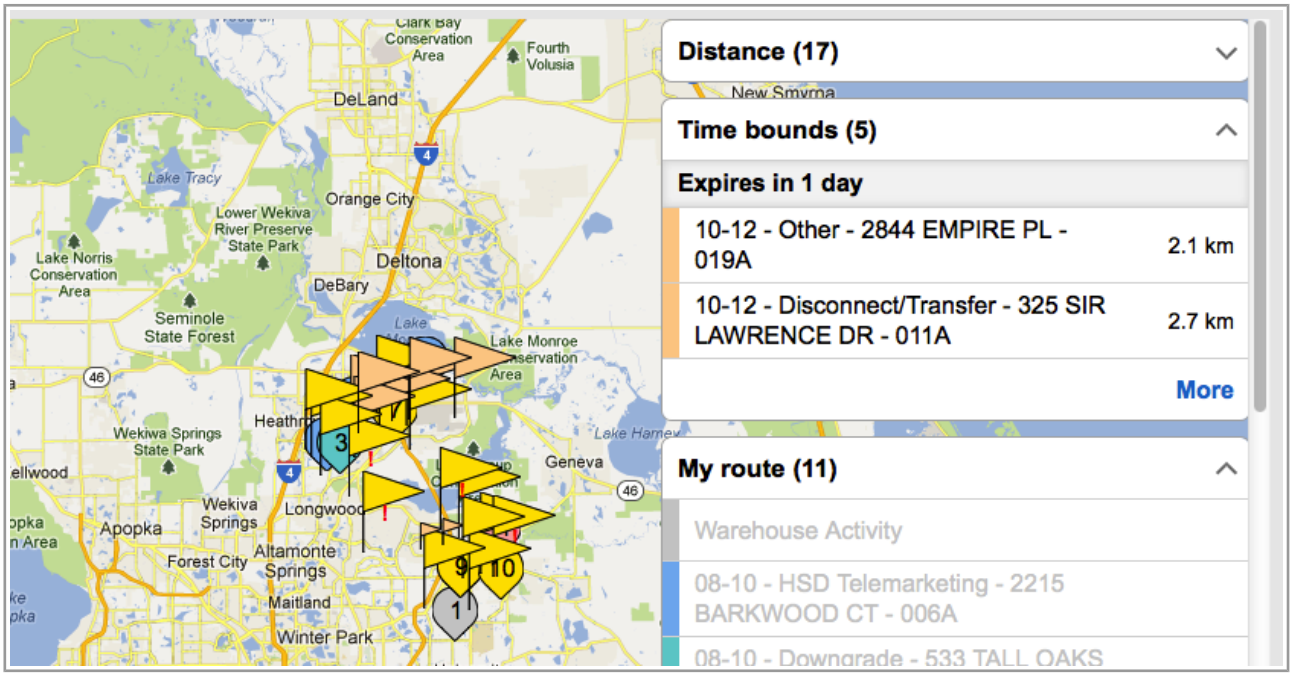


Figure 9: 'Nearby activities' screen

2.8 Login Portal

As of version 4.5 ETAdirect offers the Login Portal – a common website for user authorization for the system access. The Login Portal is to be used instead of the separate domains created for each company. The Login Portal allows the user to access any standalone component or application of the product, such as ETAdirect Manage, Mobility or Maintenance. Each component or application is accessible via a dedicated URL where the company's instance, login and password are to be entered.

For example, to log in to the Manage Application the following URL is to be used:

https://login.etadirect.com/

This leads to the login page containing 3 fields – instance, login and password – which have to be entered (Figure 10).

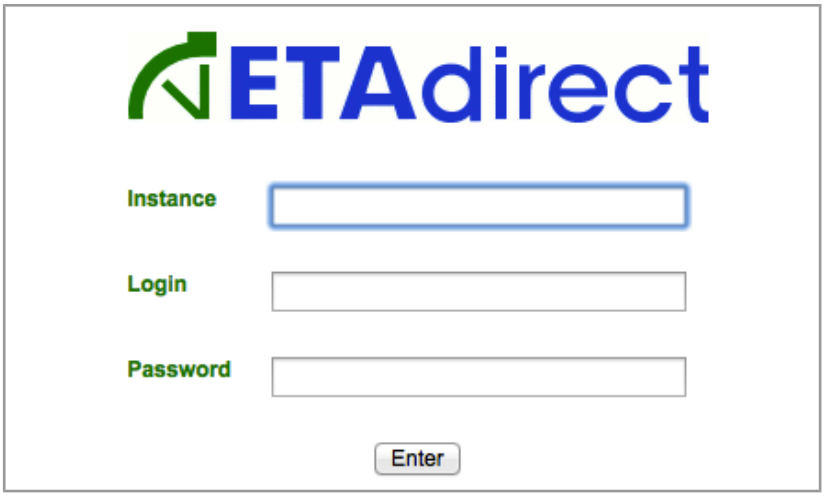


Figure 10: Login page

After successful login the user is redirected to the Manage Application.
To access the Maintenance or Mobility Applications, the user has to use the https://maintenance.login.etadirect.com/ or https://mobility.login.etadirect.com/ URL, respectively.
To logout from any application the 'Logout' button has to be clicked which redirects the user to the Login Portal again.

2.9 Manage Application

2.9.1 HTML5 DOCTYPE Used

As of ETAdirect version HTML5 is the DOCTYPE used the Manage Application. HTML5 is supported well by all modern browsers. The change to HTML5 will allow creating a simpler and more valid markup.

2.9.2 Chrome Compatibility Improved

As of version 4.5, ETAdirect compatibility with the Chrome browser has been enhanced in terms of a clearer display and scrolling options which were added for better usability.

2.9.3 Internet Explorer 7 Compatibility Improved

ETAdirect is now better compatible with the Internet Explorer 7 browser. Some minor shortcomings in the Main Menu behavior observed in the ETAdirect use via IE7 have been fixed.
The 'Schedule Report' functionality for ETAdirect applications used via Internet Explorer 7 has also been improved by adjusting some user-editable fields.

2.9.4 iPad Compatibility Improved

ETAdirect usability for iPad users has been improved. The issues with buttons disappearing after a window resize or scrolling working improperly have been addressed ensuring a smoother ETAdirect use on iPad devices.

2.9.5 Manage Application Usability Improved

- The Manage Application was noticed to behave unusually after a page refresh – whenever a page was refreshed the application would return an empty screen. This issue has been resolved in version 4.5.
- In some cases it was difficult to use the buttons in the dialog window due to their poor contrast: The dialog window buttons design has been changed and now they have the same appearance as the main screen buttons which gives the application a more streamlined look and enhances its usability (Figure 11).

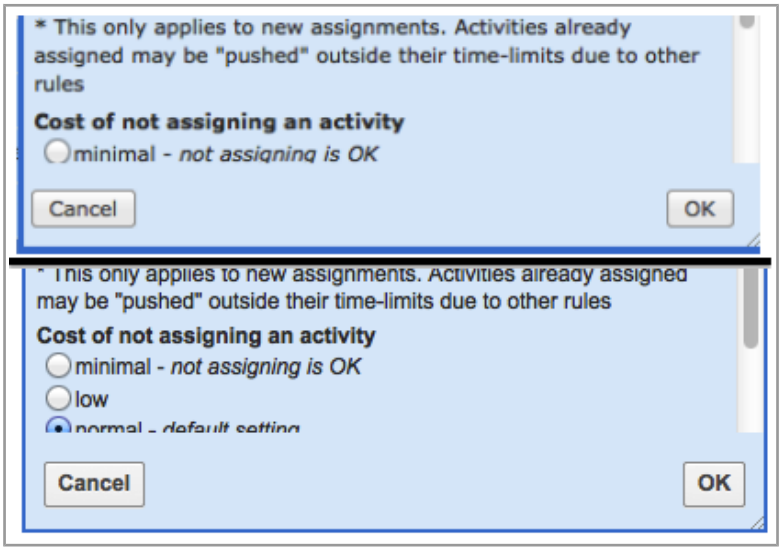


Figure 11: Old (top) and new (bottom) buttons design

2.9.6 'View' Function Adjusted

If filters were disabled in configuration on the technician level the technician would see an empty box when clicking 'View' (Figure 12).

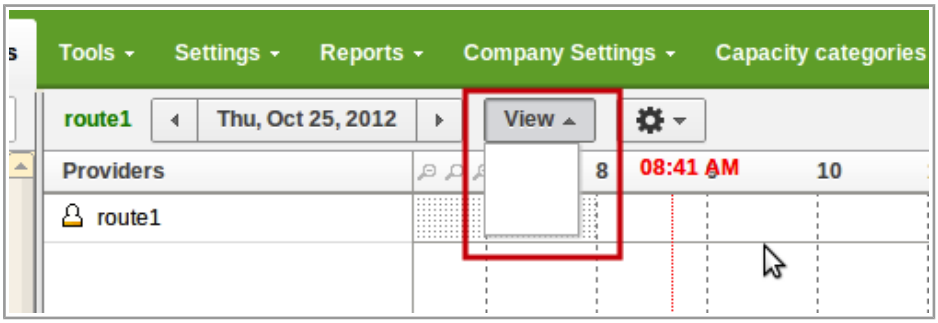


Figure 12: Empty 'View' box

This has been fixed in version 4.5.

2.9.7 Zoom Button in the Activities View Redesigned

The previous design of the zoom buttons in the Activities Time View did not ensure the optimum usability of the zoom functions (Figure 13). In ETAdirect version 4.5 the zoom function has been integrated in the 'View' drop-down menu in the form of a zoom-in/zoom-out slider with a 'Fit' button fitting the image to the screen (Figure 14).

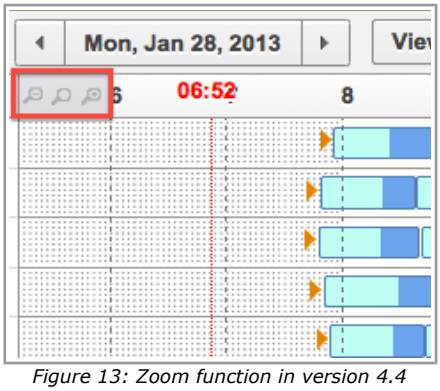


Figure 13: Zoom function in version 4.4

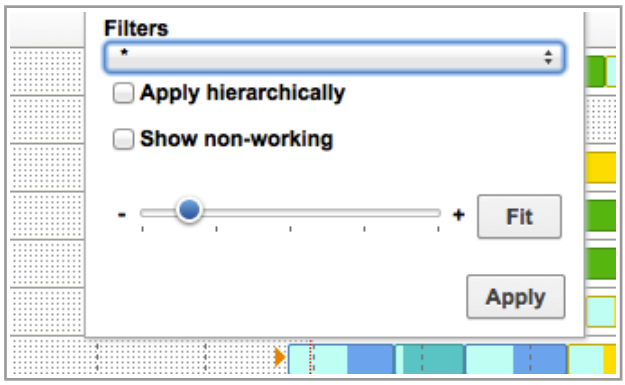


Figure 14: Zoom buttons in version 4.5

2.9.8 Search Fields Style Standardized

The search fields in different ETAdirect screens (such as Resource Tree, Permissions, SmartCollaboration, etc.) have been redesigned in the style of the 'Activity Search' field – with the 'magnifying glass' symbol on the left and the 'X' (clear) button on the right. This gives the system a more uniform look (Figure 15).

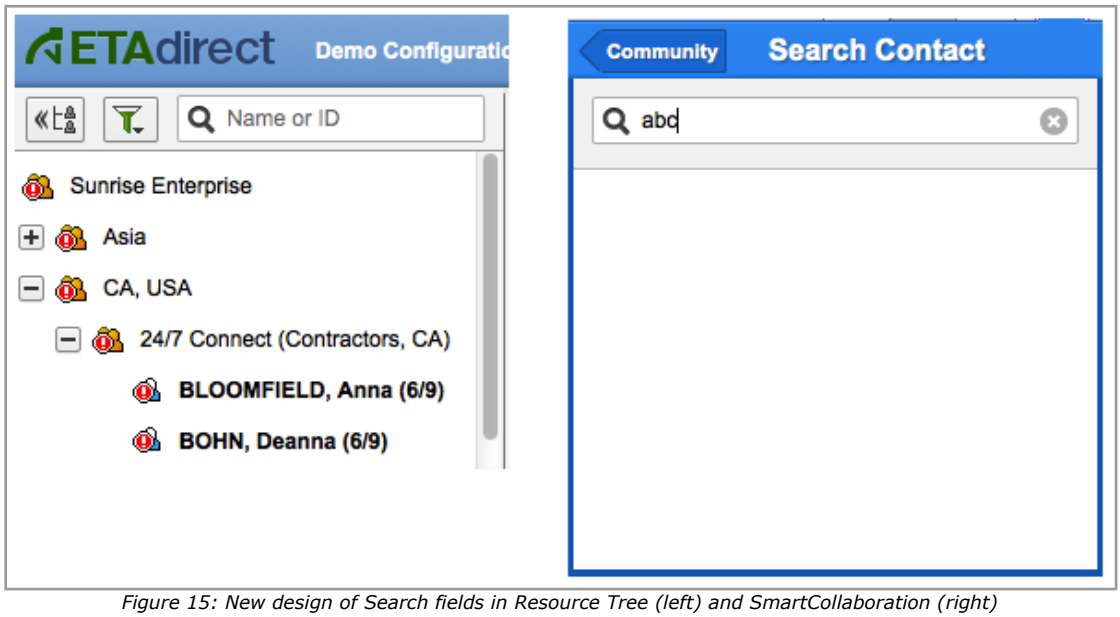


Figure 15: New design of Search fields in Resource Tree (left) and SmartCollaboration (right)

2.9.9 Search String Length Restricted

As of version 4.5.0 the maximum length of the activity search string has been restricted to 100 characters. The search field shows only the first 100 characters of the search string ignoring any characters exceeding this limit.

2.9.10 List View – Column Header Hint Added

In ETAdirect version 4.5 the column headers now have hints containing header text. These hints appear when the mouse hovers over the column header. Hints can be useful when the number of columns is large causing some header text to be cut off.

2.9.11 Notification Firewall Removed from Manage Application

As of version 4.5, the Notification Firewall can no longer be found in the Manage Application – its settings have been limited to the Maintenance Area only. Therefore, the 'Notification Firewall' main menu item can no longer be added via the 'Context Layout' screen and the 'Notification Firewall' permissions have been removed from the 'Permissions' screen.

2.9.12 Improved Recognition of Right-to-Left Languages

In the previous versions ETAdirect displayed the resource's activities number in a wrong place when the resource's name was in a right-to-left language. The activities number was placed before the resource's name (Figure 16).

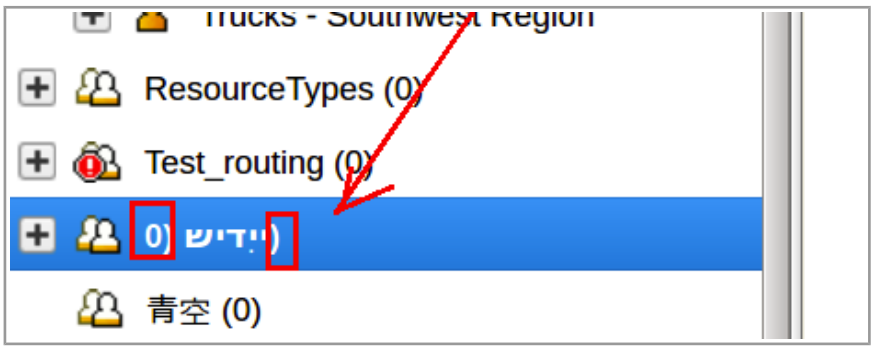


Figure 16: Wrong activities number display for resource's names in right-to-left languages

Now the system is able to distinguish between the resource's name and its activities number, therefore, the number is in the right place – after the name.

2.9.13 Resource Hint Now Shows Work Zones

The previous versions of ETAdirect had no possibility of showing the resource's work zones in the resource's hint. This option could not be configured through the corresponding context as there was no property which could be added to the 'Visible hint columns for technician/buckets' context to display the work zones. Version 4.5 has the corresponding property, and the context can be updated so that the resource's work zones are shown in their hint (Figure 17).

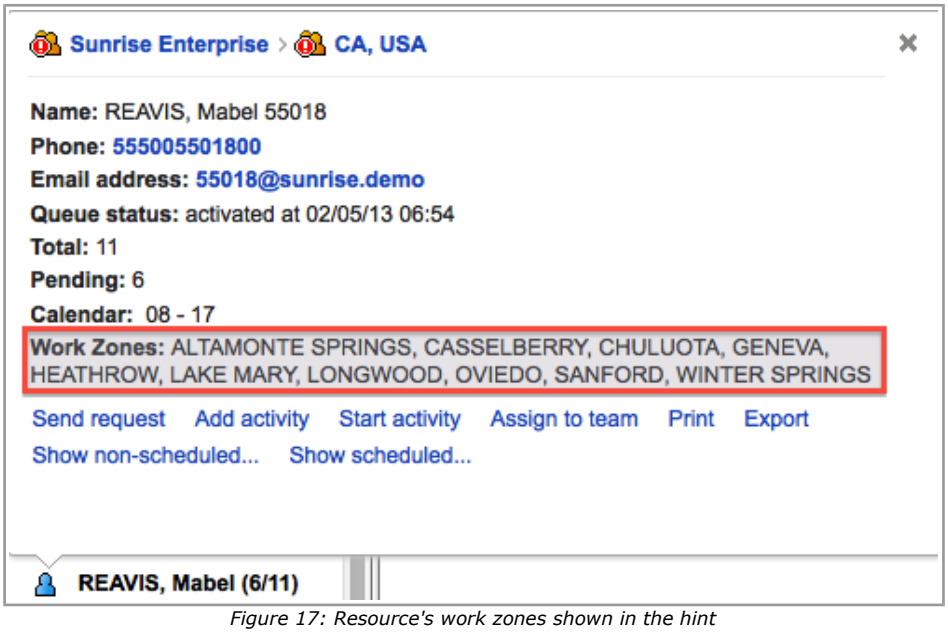


Figure 17: Resource's work zones shown in the hint

2.9.14 'Main Resource' Option Improved

– Users added to resources during resource creation were saved without a Main Resource, though the 'Main Resource' checkbox was checked (Figure 18).

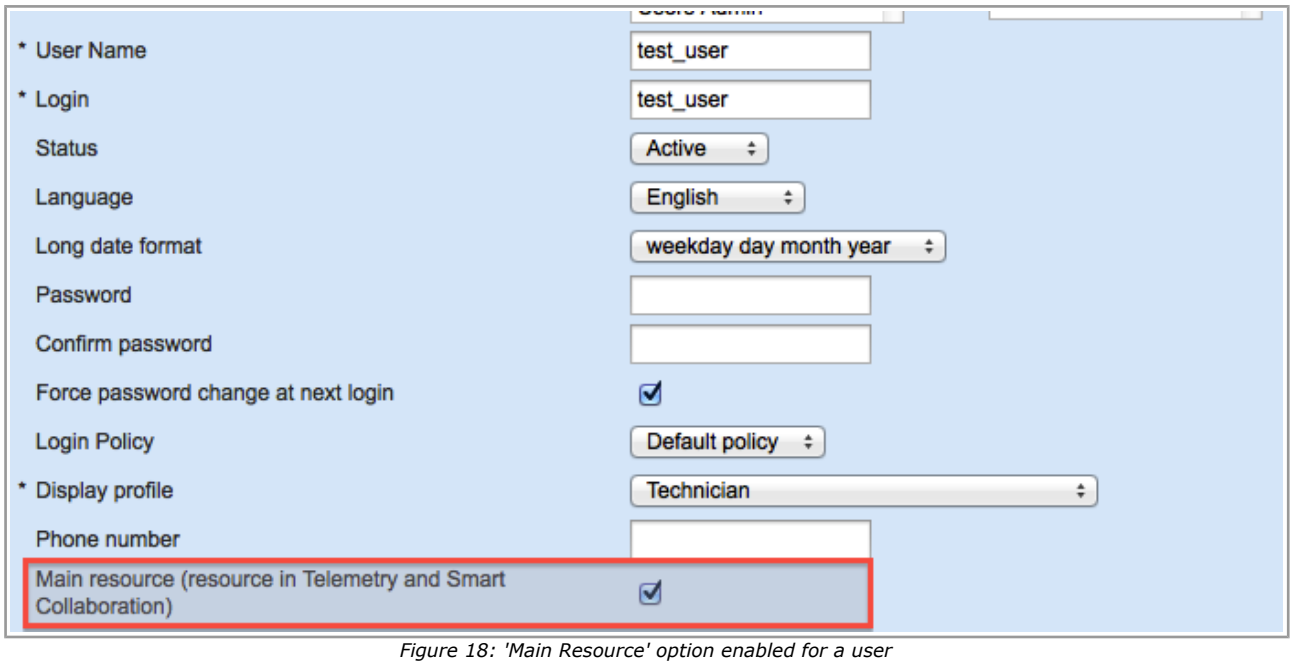


Figure 18: 'Main Resource' option enabled for a user

This has been fixed and now users with the 'Main Resource' option enabled are created properly (Figure 19).

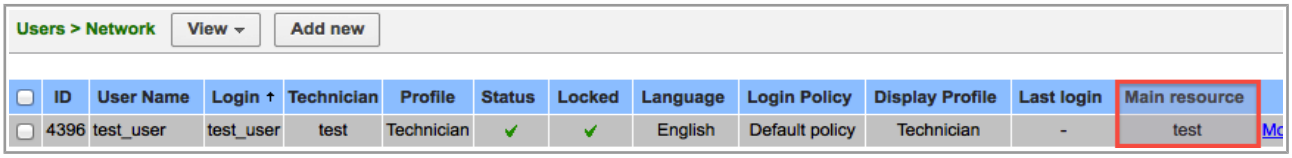


Figure 19: 'Main Resource' option saved at time of the user creation

– Sometimes adding a user at time of resource creation with the 'Main resource' option enabled resulted in the 'Entity not found' error message (both for a technician or a bucket creation). However, this behavior is not correct in either case – when a technician is created the system should create a new resource and add a user to it. On the other hand, a bucket creation with the 'Main resource' option enabled is not allowed and should result in an appropriate error message ('It is impossible to set Main resource checkbox for this resource type'). Both situations have been addressed in version 4.5 and the 'Main resource' option is now functioning properly.

2.9.15 'My Display' Settings Improved

The 'My Display' screen allows defining the basic user preferences in respect of the system settings and appearance. Among other things, 'My Display' offers a possibility of defining the week start day. However, in the previous versions the selection of Sunday as the week start day was now saved after pressing 'OK'. When the 'My Display' screen was opened next time the 'Week start' field showed [Use company settings] instead of Sunday. This issue has been fixed and now any day can be selected as the week start day.

2.9.16 'Add Work Zone' Action Improved

In some cases the 'Technician Work Zones' screen had the 'Add new' button only when the direct parent of the selected resource had its own (not inherited) work zones. When no work zones were assigned for the company no work zones could be added for individual technicians.

In version 4.5 the work zone checking principle has been changed to allow adding work zones at any level of the Resource Tree.

2.9.17 Resource History Report Improvement

When all filter values were unchecked for a resource history, the filter was not refreshed when other resource's history was opened and only showed the 'Empty' value while other users were also shown in the resource history (Figure 20).

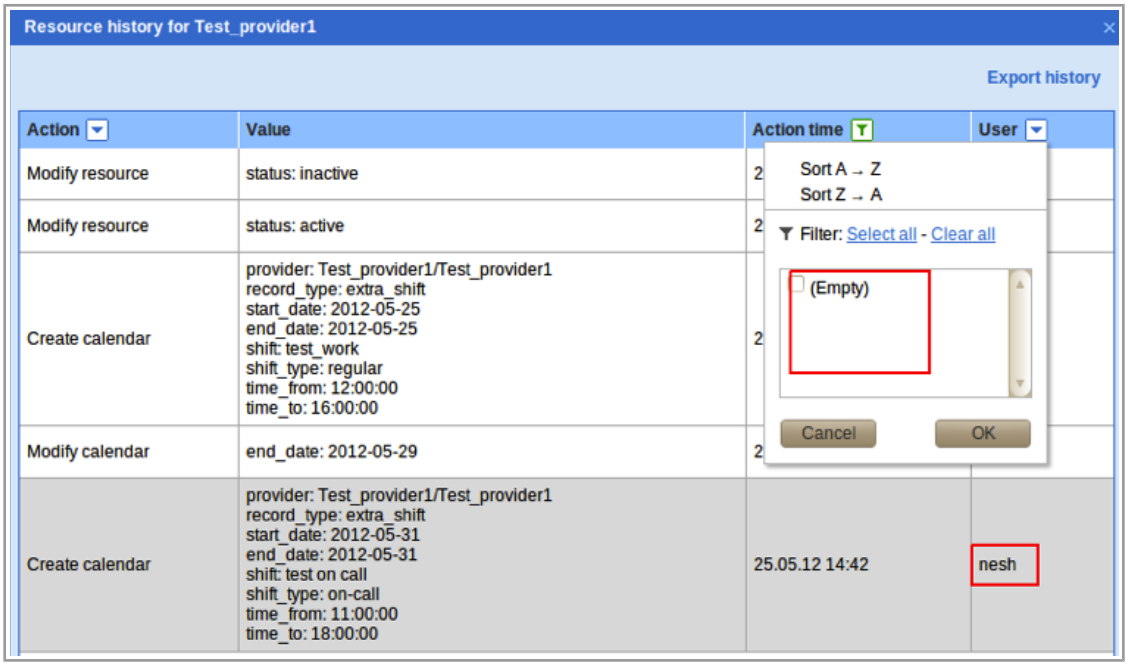


Figure 20: Filter showing only the 'Empty' value

The filter has been adjusted to always show the options included in the report.

2.9.18 Schedule Report Creation for Resources Having No ID

In the resource creation External ID is not a mandatory parameters, thus, resources can be created without external IDs. However, the 'Schedule Report' function regards this parameter as mandatory, as the schedule is not created for resources without IDs (Figure 21-22).

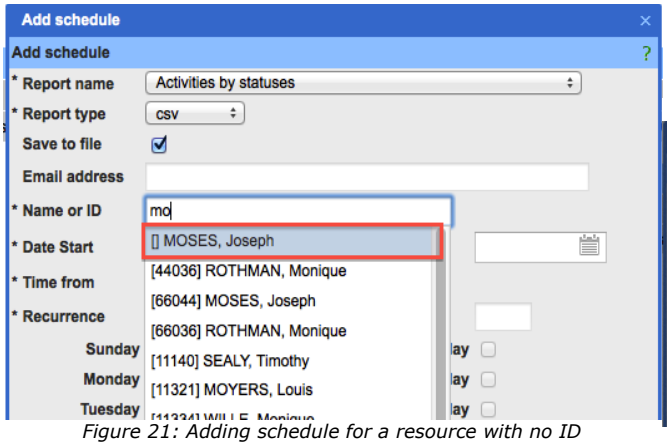


Figure 21: Adding schedule for a resource with no ID

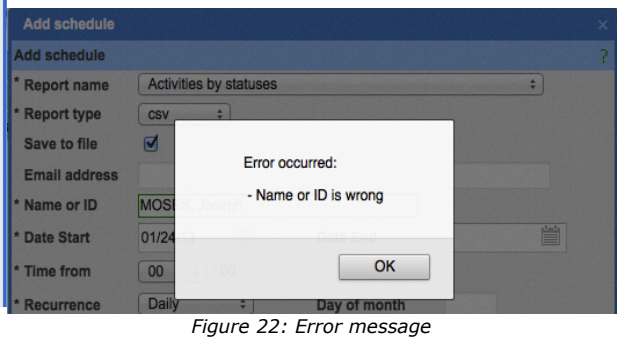


Figure 22: Error message

In version 4.5 this approach has been changed and report schedules can be added even for resources having no external ID.

2.9.19 Message Reports Displayed in User's Time Zone

The Message Report functionality has been adjusted to display the results in the recipient's time zone rather than in the user's time zone. Now it is consistent with the time zone concept adopted in ETAdirect.

2.9.20 'Auto-Routing Results' Dashboard Report Improvement

The 'Auto-Routing Results' report has now been configured to regard rollbacked activities as not routed, rather than auto-routed, as this approach is consistent with the rollbacked activities status – they are placed back in the bucket, so should not be regarded as routed.

2.9.21 Reports Screen Design Improved

All buttons in the 'Reports' screen have been placed in one line, therefore, giving the screen a more consistent and uniform appearance (Figure 23-24).

Figure 23: Buttons in version 4.4

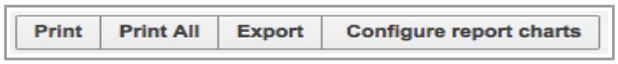


Figure 24: Buttons in version 4.5

2.9.22 Disabling Main Menu Items No Longer Disables Other Actions

In the previous version deleting all Main Menu items from a display profile resulted in a blank screen display for users with such display profile (Figure 25).

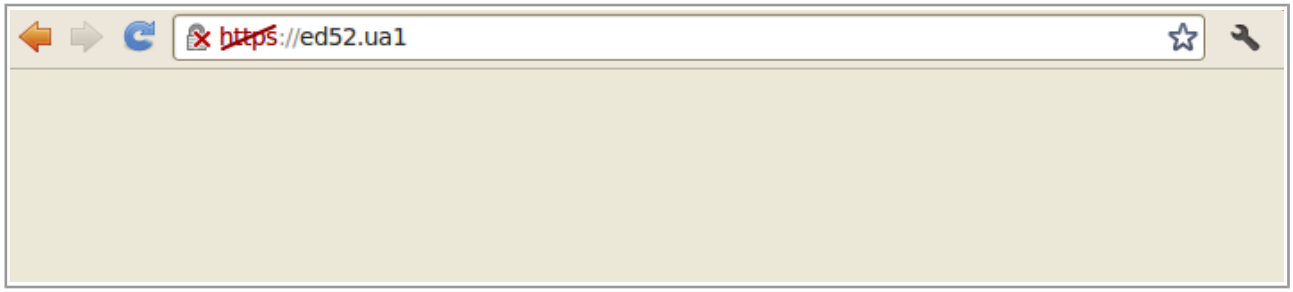


Figure 25: Blank screen appearing when all Main Menu items are deleted

This behavior was not correct as even when all Main Menu items are deleted the user should see the user menu, Activity Search and SmartCollaboration icons. In version 4.5 this issue has been fixed and now the user whose display profile contains no Main Menu items is able to see the other screen actions.

2.9.23 Quota History and Close Time History Filters Improved

The Quota History and Close Time History filters missed some time slots and capacity categories used in the selected period (Figure 26-27).

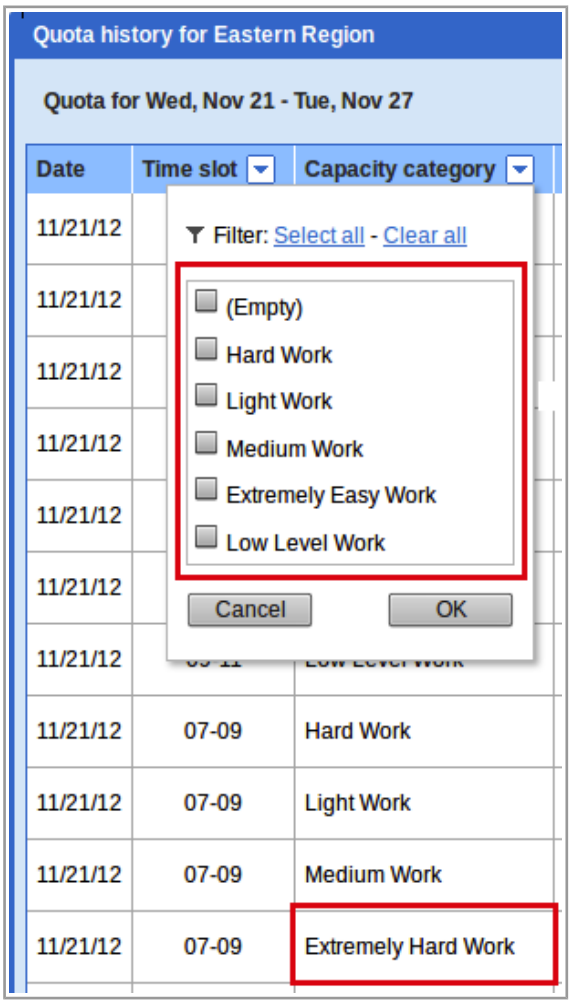


Figure 26: Capacity categories missing in the Quota History filter

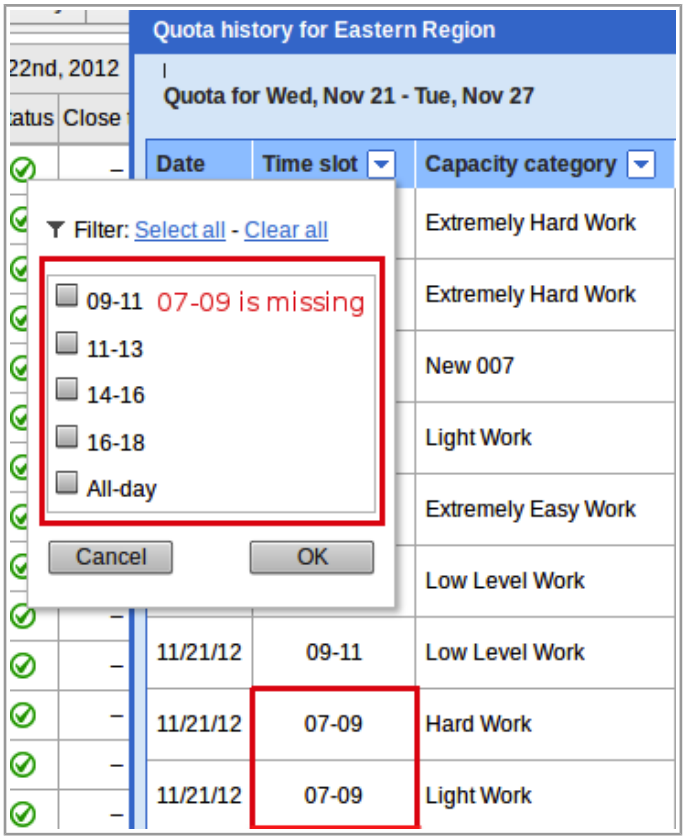


Figure 27: Time slots missing in the Quota History filter

This issue has been fixed and now the capacity category, work zone and time slot filters show all values actual for the selected bucket in the selected period.

2.9.24 Internet Explorer 7-9: Double-Clicking Inventory No Longer Causes Unusual Behavior

In the previous versions when the Manage Application was used in Internet Explorer 7-9 browsers, double-clicking inventory resulted in that inventory hint disappearance and the impossibility of moving such inventory to the chat.

In this version this issue has been fixed and the inventory actions are available.

2.9.25 Internet Explorer 8: 'Visit Bundling Keys' Functionality Improved

In the previous version when the Manage Application was used in the Internet Explorer 8 browser, the 'Visit bundling keys' window remained disabled even after the 'Enable the Visit functionality' checkbox was checked (Figure 28).

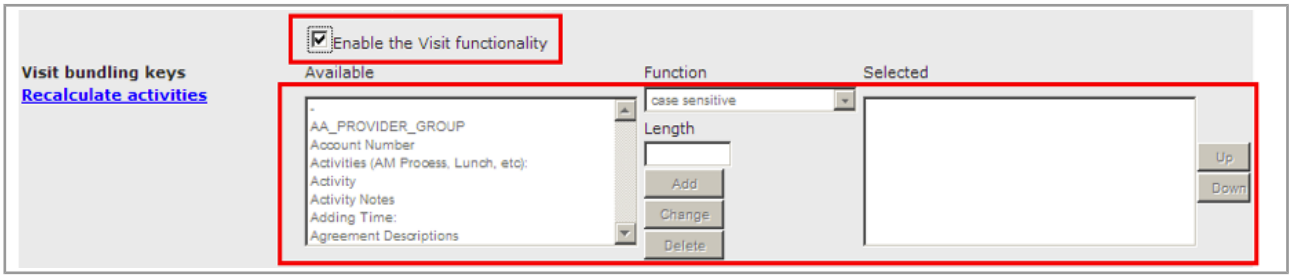


Figure 28: Visit bundling keys disabled

In ETAdirect version 4.5 this issue has been addressed, and now this functionality is working properly, thus improving the compatibility with IE8 more.

2.9.26 Activity Features

2.9.26.1 Support of Not-Ordered and Non-Scheduled Activities Improved

– In the previous versions an activity of the type with the 'Support of not-ordered activities' option unchecked could be placed to the not-ordered pool by dragging and dropping the activity in the time view (Figure 29-30).

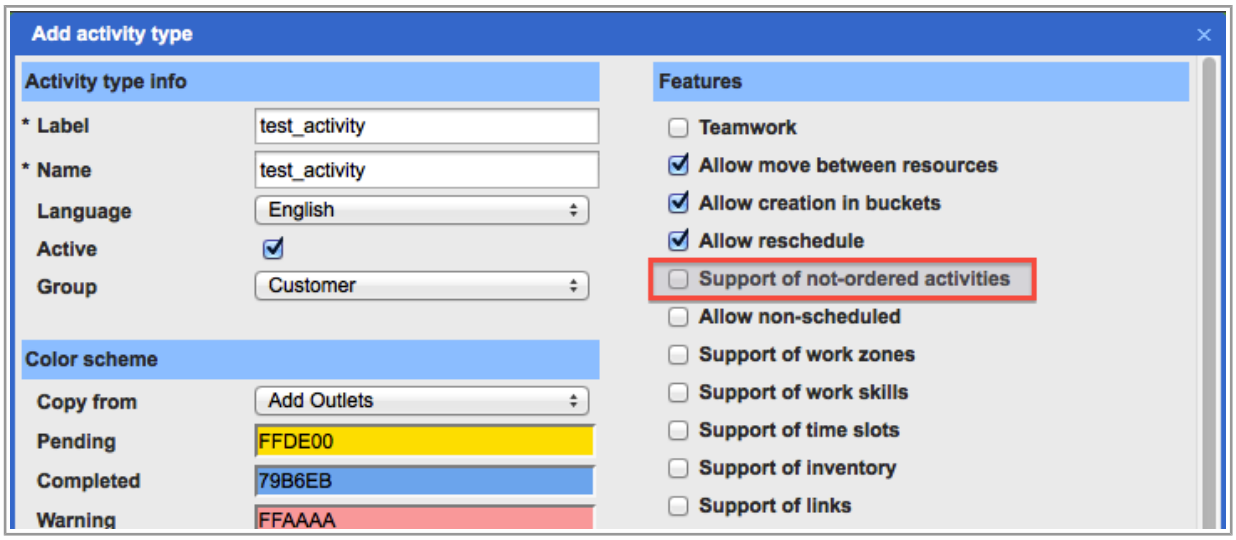


Figure 29: Setting activity type as not supporting not-ordered activities

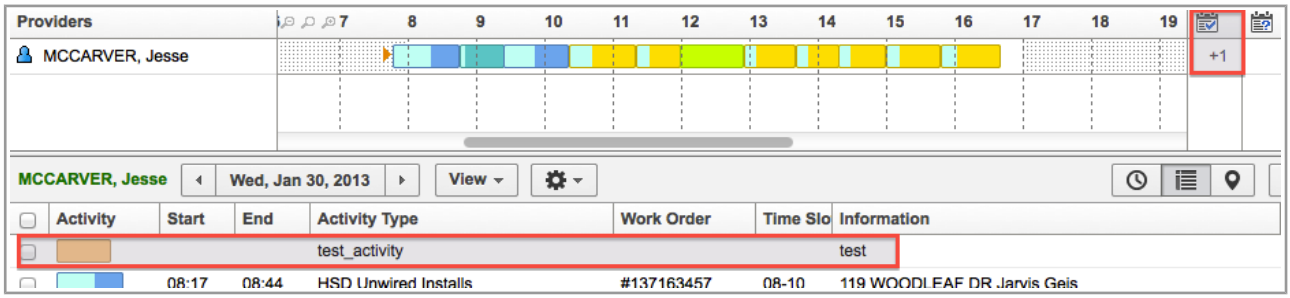


Figure 30: Activity dragged to the not-ordered pool

Such behavior was inconsistent with the not-ordered activities concept. In version 4.5 the attempts to move such activities to the not-ordered pool result in an error message, and the

activities are not moved (Figure 31).

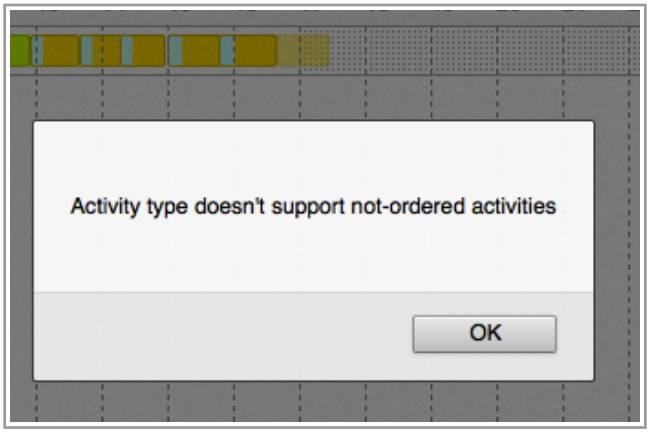


Figure 31: Error message shown for activity move to not-ordered pool

- When a group of activities including an activity of the type with the 'Allow non-scheduled' option unchecked was moved to the non-scheduled pool the move was not performed with the error message 'Activity type doesn't support non-scheduled activities'. This system response ignored the other activities in the group belonging to types supporting non-scheduled activities.
  Version 4.5 offers a more flexible approach to such group actions opening a 'Move' window showing the activities which can be moved and those which cannot (Figure 32).

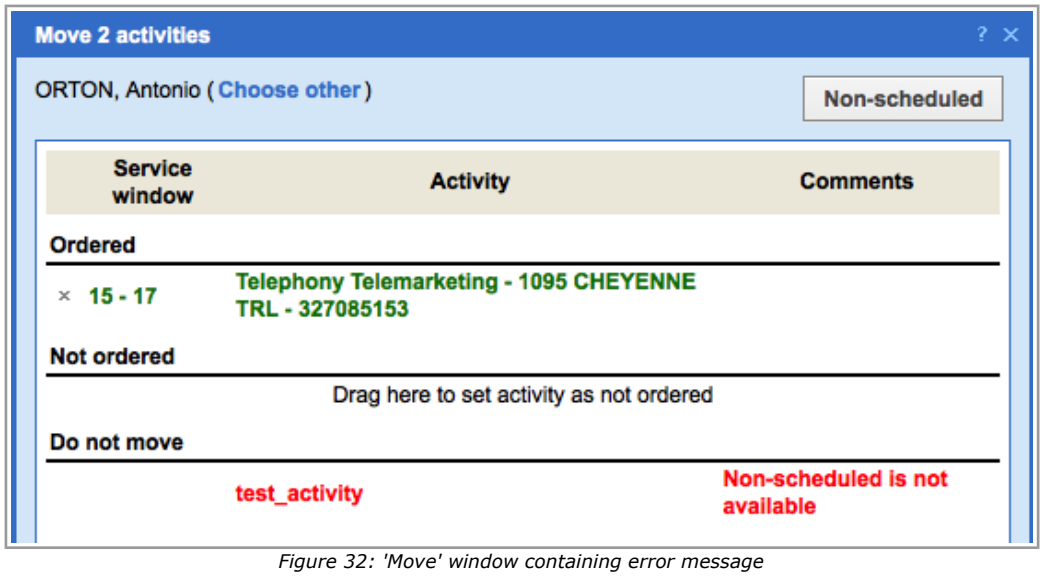


Figure 32: 'Move' window containing error message

2.9.26.2 'Reopen Activity' Window Size Optimized

In the previous versions when the activities to be reopened contained inventory, the 'Reopen activity' window size was adjusted to the length of the inventory properties and, therefore, was too small to be properly usable (Figure 33).

In the new version the tabs have scrolling buttons appearing when the tab width is insufficient (Figure 34).

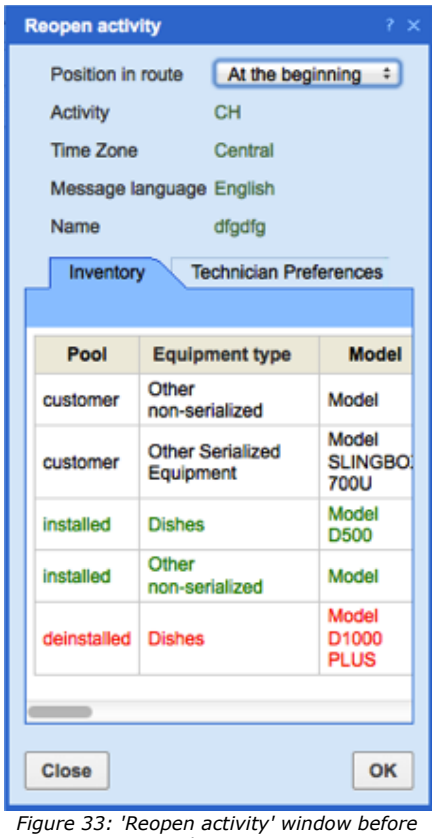


Figure 33: 'Reopen activity' window before changes

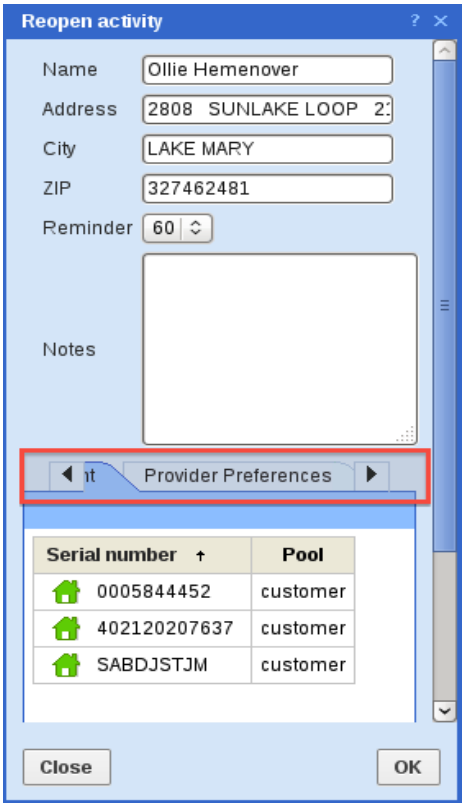


Figure 34: 'Reopen activity' window after changes

2.9.26.3 Illogic Teamwork Creation Resolved

The previous version of ETAdirect allowed creating teamworks with the same resource being the team-holder and the team-member which was illogic and inapplicable in practice (Figure 35).

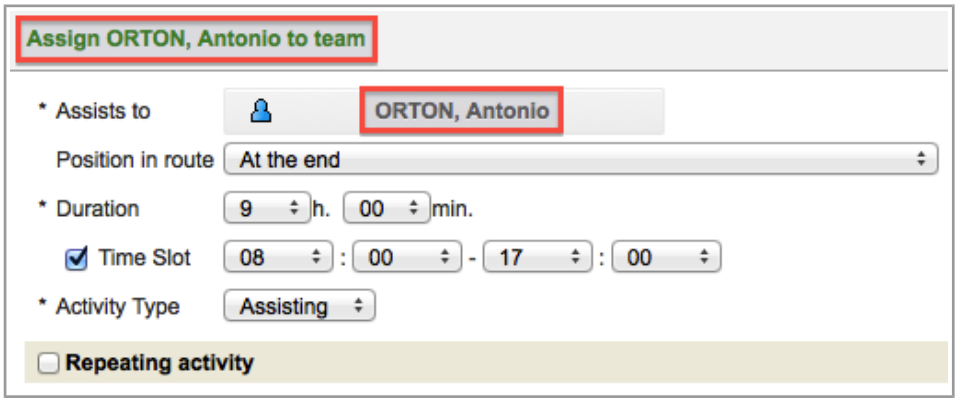


Figure 35: Teamwork creation with the same resource as the team-holder and the team-member

Such teamwork creation request would be processed by the system with no warnings and the teamwork was shown on the Resource Tree (Figure 36).

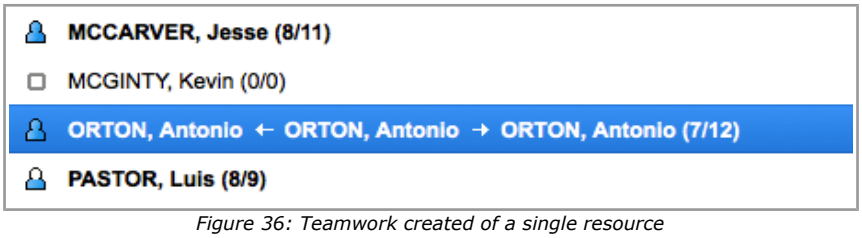


Figure 36: Teamwork created of a single resource

This behavior was addressed in version 4.5 and the system no longer allows creating teamworks with the same resource being the team-holder and the team-member (Figure 37).

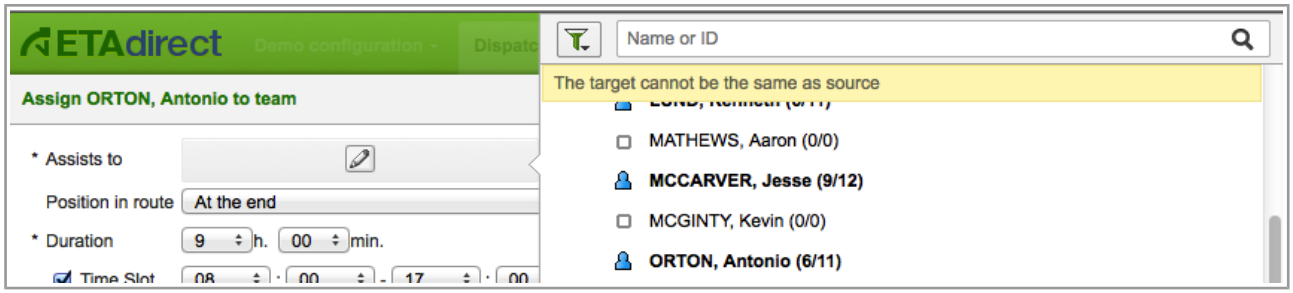


Figure 37: Error message appearing when same resource is team-holder and team-member

2.9.26.4 Adding or Editing Activity with SLA in the Past Now Possible

In the previous versions the Manage application did not allow adding or editing an activity with SLA in the past returning the 'SLA start is wrong' error message. Some business situations may require such actions, so in version 4.5 a new option has been added allowing adding or editing activities with SLA in the past, just like any other activities.

2.9.26.5 Mass Activity Creation for a Single Day Possible

The previous version of ETAdirect displayed an error message 'Mandatory parameter is empty' when a user tried to create a mass activity which was not set as recurrent. The mass activity was not created. This has been fixed in version 4.5 and now mass activities can be created for one day only.

2.9.26.6 Repeating Activity Start Action Improvement

In the previous version of ETAdirect the 'Start activity' action was not functioning properly. The 'Start activity' link in the resource's hint should create an activity simultaneously starting it (Figure 38).

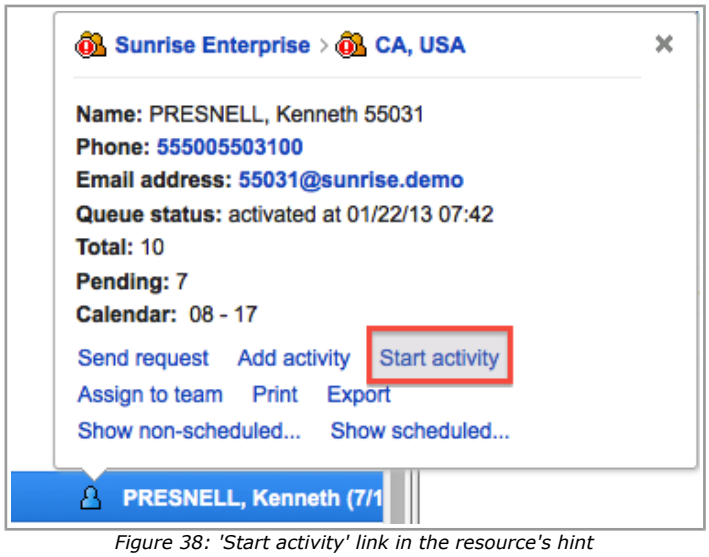


Figure 38: 'Start activity' link in the resource's hint

However, in the previous version a repeating activity started by the 'Start activity' link in the resource hint was added to the resource's route, but not started (Figure 39).

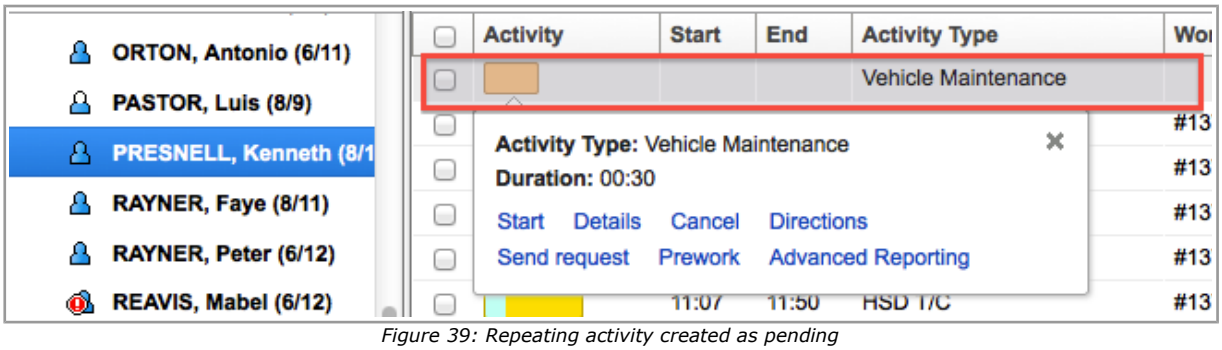


Figure 39: Repeating activity created as pending

This issue has been resolved and the 'Start activity' link now functions properly.

2.9.26.7 Activities Color-Coded Similarly in Activities View and Search Results

The activities color-code selected for a certain activity type in the 'Activity Types' screen is now consistently carried through to the 'Search Results' menu where the activities matching the search criteria are shown in the same color (determining their status) as in the Activities View.

2.9.26.8 'Activity Search' Window Redesigned

The design of the 'Activity Search' window has been altered – the header items have been aligned and the unnecessary scroll bar in the bottom has been removed. Now the 'Activity Search' window has a clearer look (Figure 40-41).

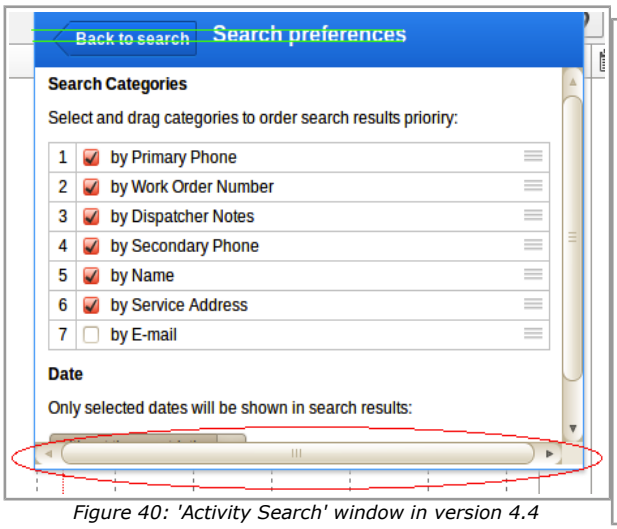


Figure 40: 'Activity Search' window in version 4.4

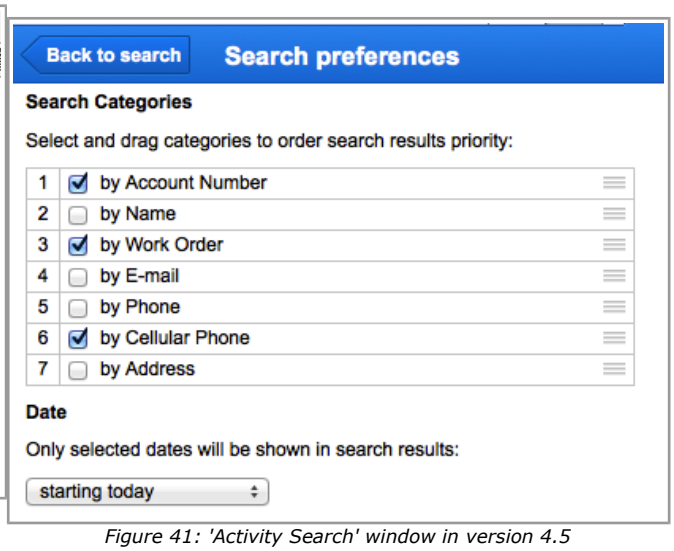


Figure 41: 'Activity Search' window in version 4.5

2.9.26.9 Activity Alert Color-Code Improved

In the previous versions an activity for which a warning had been issued due to any constraint violation was color-coded differently in different screens (for example, red in the subgrid but yellow in the Time View) after such activity was dragged and dropped (Figure 42).

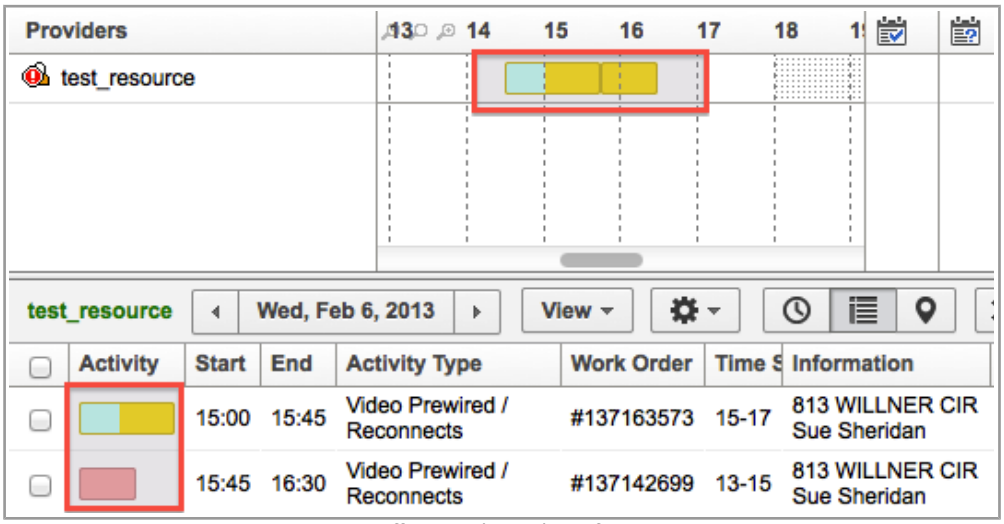


Figure 42: Different color-coding of same activity

This issue has been resolved and now whenever a warning is issued for an activity, such activity is shown in red color in all relevant screens.

2.9.27 Activity Move Functionality Improvements

2.9.27.1 'Move activity' Now Accompanied with Correct Hints

A resource's pending activity move to the scheduled panel of the same resource and to the same resource's name in the Resource Tree produced different hints, while referring to the same action. The move to the scheduled panel resulted in the 'Drop on resource or queue to move activity' hint while the activity was not actually moved. The move to the Resource tree resulted in the 'Activity is already in the

queue' hint and the activity was not moved, either (Figure 43).

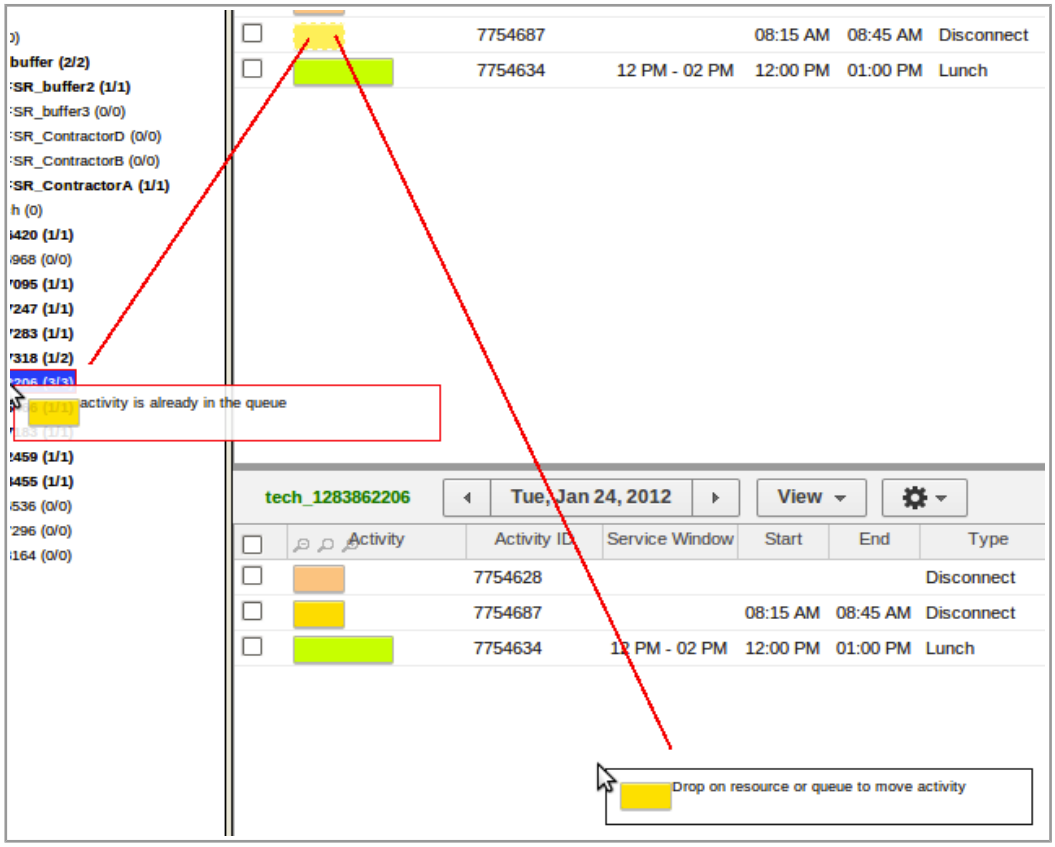


Figure 43: Wrong 'Move activity' hints

Now the logic has been changed and the 'Move activity' action in such situation is accompanied with the correct hints (Figure 44).

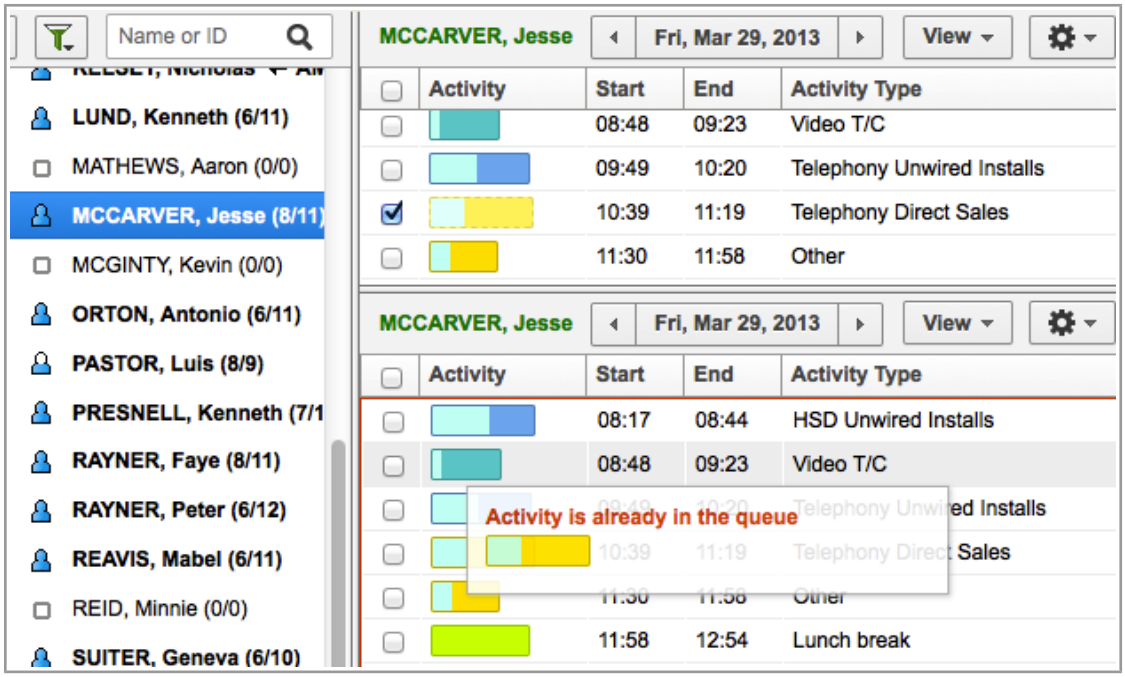


Figure 44: Correct 'Move activity' hint

2.9.27.2 Resource Selected for Activity Move Remains on Screen after Conditions Change

When a resource was selected for an activity move and afterwards became unavailable for such move (for example, when the activity move was scheduled to such resource's non-working time), the resource name was removed from the screen.

This has been fixed in version 4.5 – the resource's name remains visible, however, the conflict description is also shown in the 'Move' window (Figure 45).

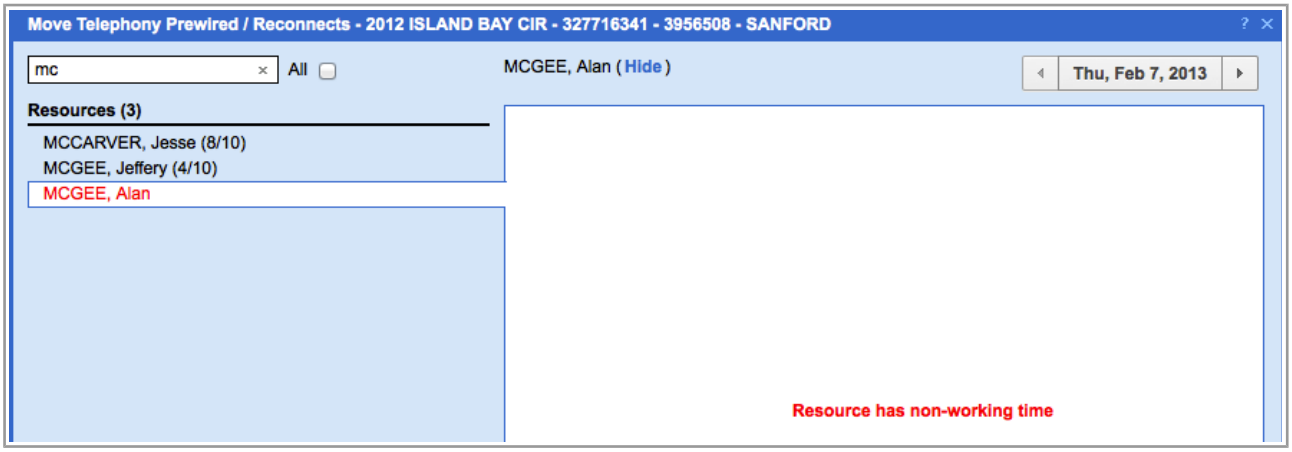


Figure 45: 'Move' window with an unavailable resource selected

2.9.27.3 Not-Ordered Activities Move Improved

In the previous version a not-ordered activity moved to a different resource was placed in that resource's ordered queue. Dialogs would appear only when other constraints, such as work zone, were violated, but otherwise such move was allowed (Figure 46).

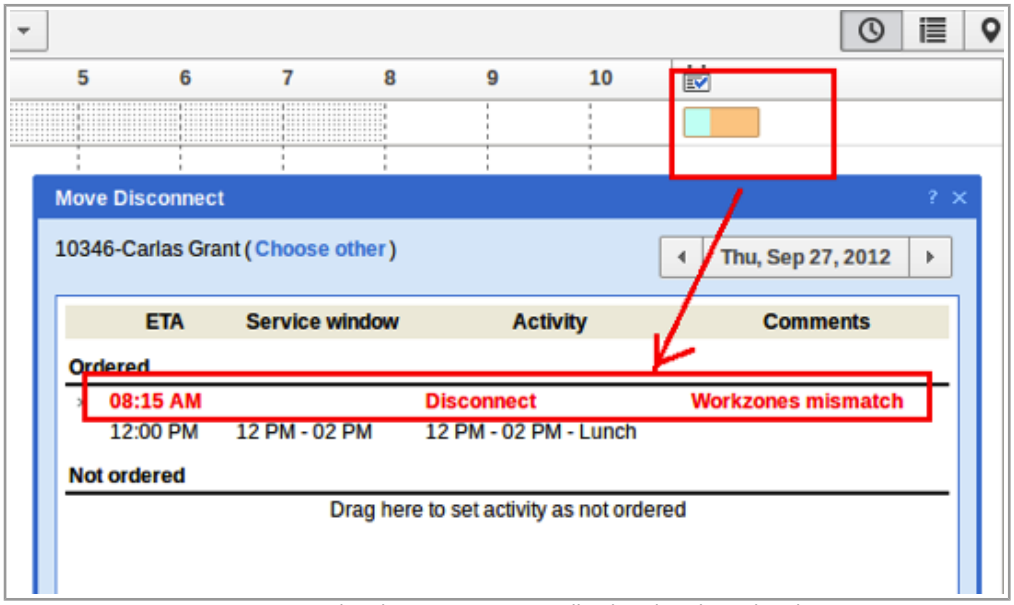


Figure 46: A not-ordered activity automatically placed to the ordered queue

This issue has been fixed in version 4.5 and now not-ordered activities are moved to the not-ordered queue as their concept requires.

2.9.27.4 'Move activity' in Overnight Improved

If 'Overnight work' has been defined in 'Company Settings' → 'Business Rules', the possibility of managing the yesterday's route becomes available. However, it was impossible to move an activity to yesterday even when overnight had beed set for the company.

A new check has been added to verify that both the company's overtime and the resource's overtime have not expired, thus, making the move possible.

2.9.27.5 Move of Large Groups Including Visits Improved

In the previous versions a group move of over 100 activities including visits did not actually move the visits. The reason for such behavior was the difference in the group move implementation for groups of 100 or less activities and the groups of over 100 activities. This issue has been fixed and now visits are moved together with the activities group.

2.9.27.6 Warning Message on Activity Reschedule Reworded

When an activity move to a non-working day was attempted the system responded with a 'Wrong data' error message which did not contain a clear explanation of the error (Figure 47).

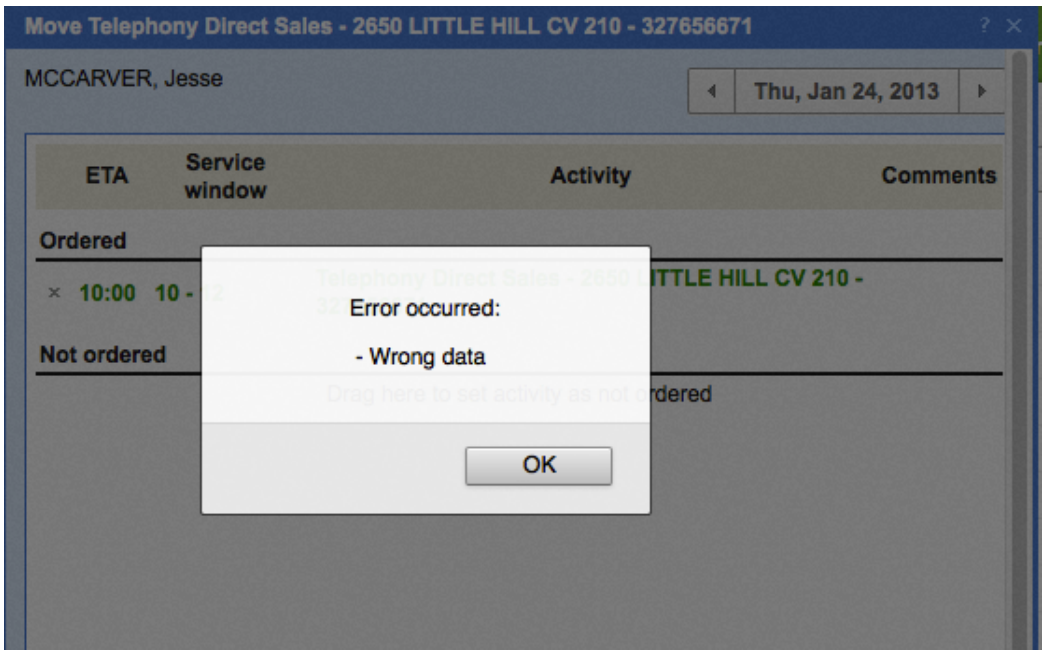


Figure 47: Error message displayed for an activity move to a non-working day in version 4.4

In version 4.5 the message text has been changed to read 'Resource has non-working time' which carries a far clearer message (Figure 48).

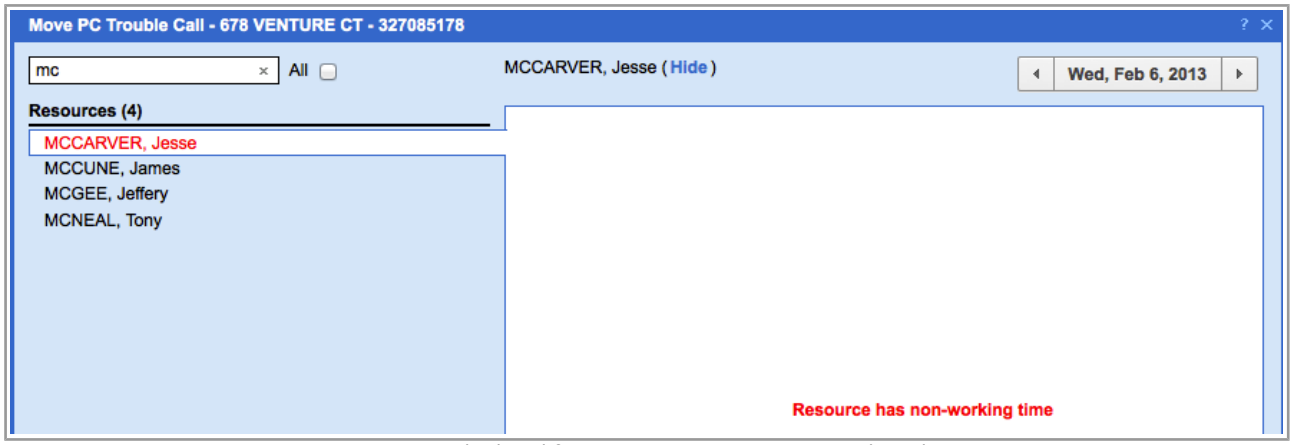


Figure 48: Error message displayed for an activity move to a non-working day in version 4.5

2.9.27.7 Activity Move within Route Improved

In some cases an activity move within the same route was produced a 'No movable activities selected' error message and the activity was not moved.

This issue has been addressed and now no error messages are displayed for activities move within a route.

2.9.28 Permission Improvements

In ETAdirect version 4.5 the Permissions functionality has been improved in terms of adjustment of the ReadWrite, ReadOnly and Mandatory permissions which enable or disable certain actions to certain users depending on the settings. In the previous versions there were some shortcomings in the Permissions

performance for 'Survey', 'Work Skills', 'Work Skill Conditions', 'Work Skill Groups', 'My Display', 'Schedule Report', 'Linked Activities', 'Context Layout' and 'Users' screens and the group actions in the Activity List View. In some cases the Permissions set did not allow or prohibit the corresponding actions, but now all these issues have been fixed.

2.9.29 Expand/Collapse Buttons Removed from the Permissions Tree in the Search Mode

The Permissions Tree has the collapse/expand buttons showing or hiding the contents of a certain branch. In the previous versions of ETAdirect the collapse/expand buttons were also available in the search mode (Figure 49). In version 4.5 the option of collapsing/expanding the Permissions Tree in the search mode has been removed and, thus, the corresponding buttons are no longer available (Figure 50).

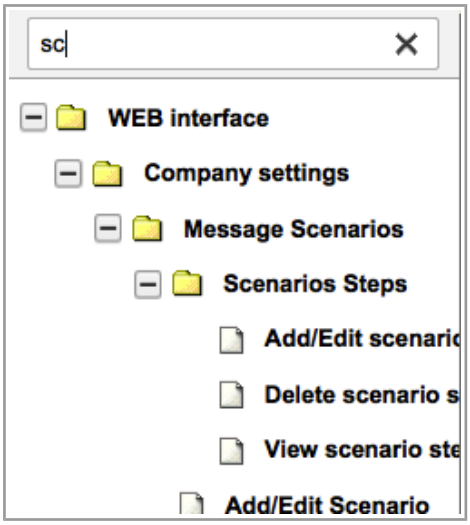


Figure 49: Permissions tree in version 4.4

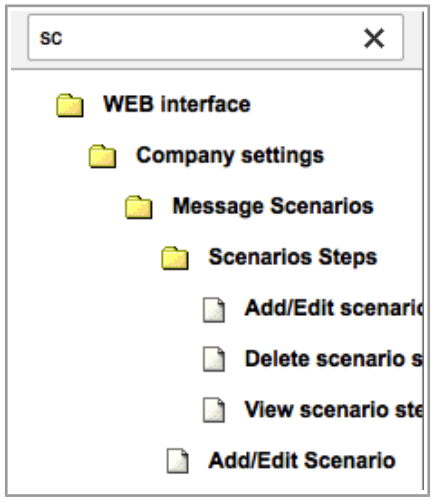


Figure 50: Permissions tree in version 4.5

2.9.30 Group Action Permissions Removed

In the previous versions the group actions and their visibilities in the Activity View could be defined in the 'Visible list columns' context layout. However, the same group actions could be found in the 'Permissions' tree ('Cancel group of activities' and 'Change group of activities') where, again, their permissions could be set. Such double permissions were confusing and could complicate the system configuration.
Therefore, as of version 4.5 the 'Cancel group of activities' and 'Change group of activities' permissions have been removed from the 'Permissions' screen, and the corresponding permissions can only be defined via the 'Context layout structure' screen.

2.9.31 'Property contexts list' Permissions Removed

In ETAdirect version 4.5 the visibilities of properties and fields are managed in different context screens (for example, 'Add activity/Activity details', 'Technician/Bucket info', etc.). Therefore, the 'Property contexts list' permissions in the 'Permissions' screen have become obsolete and thus removed (Figure 51-52).

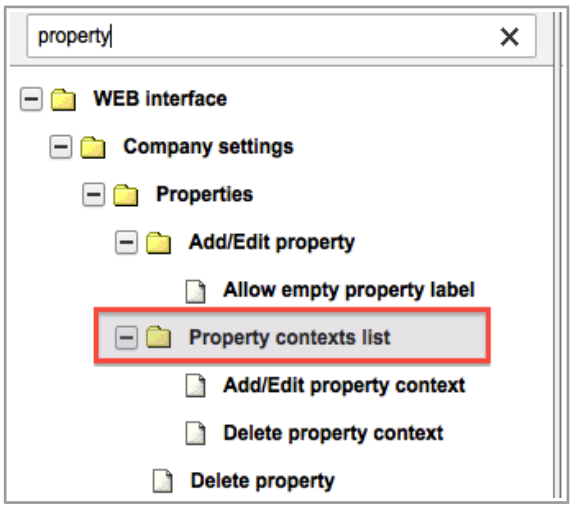


Figure 51: 'Property contexts list' permissions absent in version 4.4

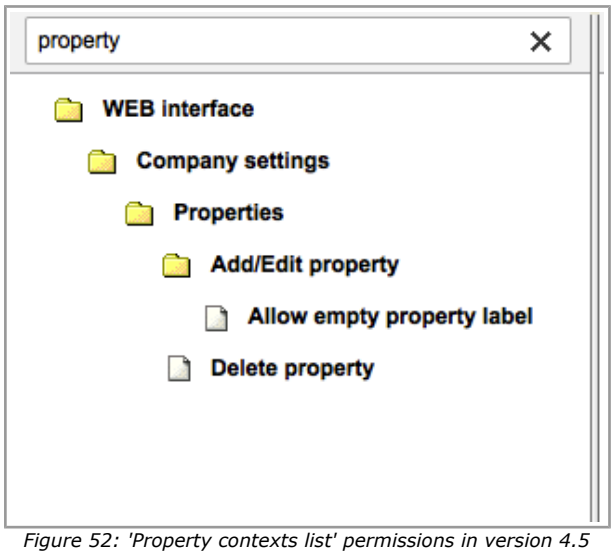


Figure 52: 'Property contexts list' permissions in version 4.5

2.9.32 'Reoptimization' Permission Added

With the implementation of the Reoptimization functionality, a new 'Reoptimization' permission has been added to the Permissions Tree ('Manage' → 'Company settings' → 'Routing Profiles' → 'Reoptimization') (Figure 53).

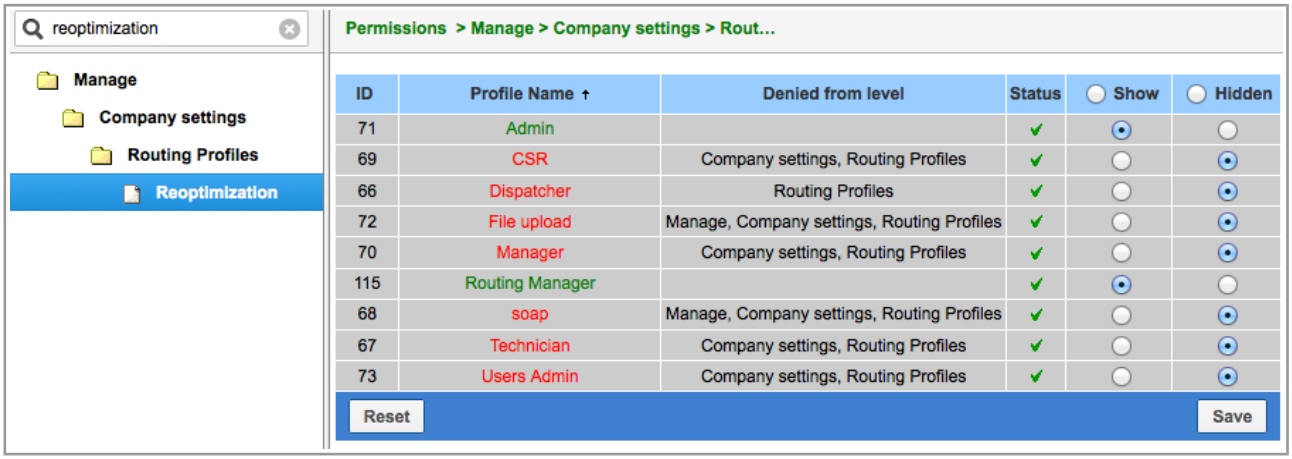


Figure 53: 'Reoptimization' permission

The 'Reoptimization' permission has two options – 'Show' and 'Hidden' and controls the user's access to the 'Reoptimization' functionality.

2.9.33 Company Settings Optimizations

2.9.33.1 'Status' Checkbox Added to the 'Non-working Reason' Screen

According to the non-working reason concept there must be an option to mark it either as active or inactive. However, the 'Add/edit non-working reason' form contained no field to set the status of the non-working reason. This has been improved in version 4.5 by including a checkbox setting the non-working reason active or inactive in the 'Add/edit non-working reason' form (Figure 54).

Figure 54: Active/inactive checkbox added to 'Add non-working reason' window

2.9.33.2 'Add Work Skill' Function Improved

When a user created a work skill with a name containing special symbols (for example, &, <> or %), its name in the list would look different (Figure 55).

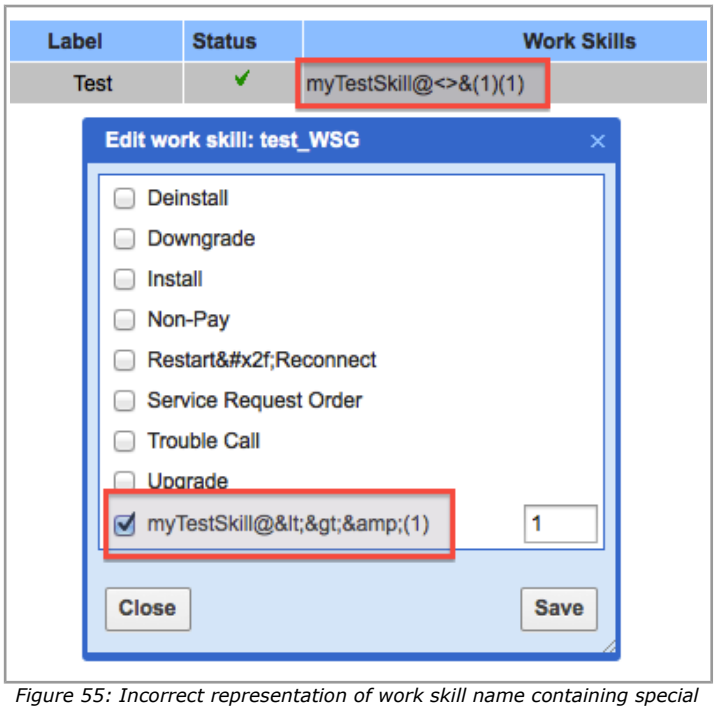


Figure 55: Incorrect representation of work skill name containing special symbols

This issue has been resolved and now the user can see the same characters in the 'Work Skills' list as were used in the 'Add work skill' window (Figure 56).

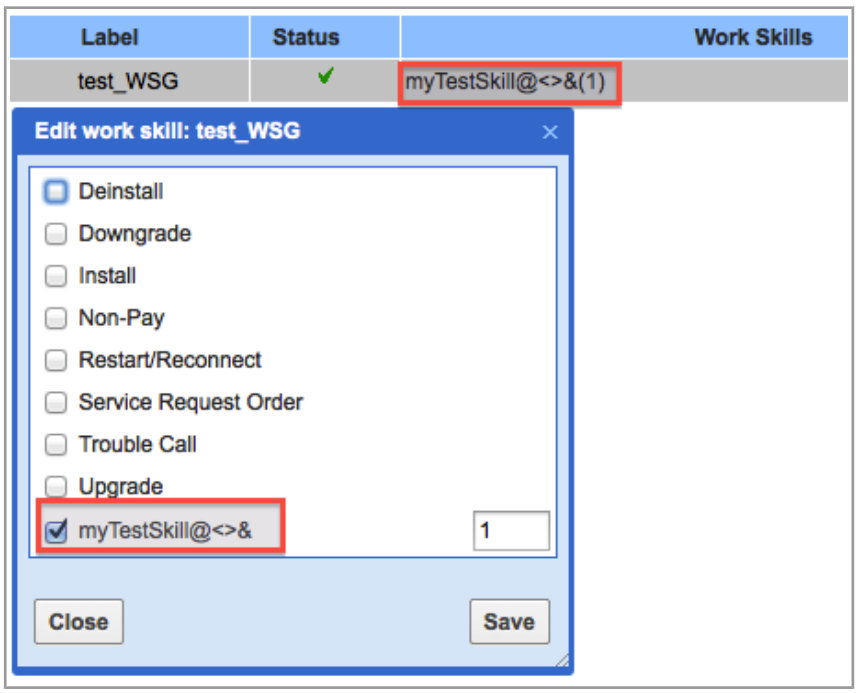


Figure 56: Special symbols shown in 'Edit work skill' window

2.9.33.3 Work Skill Groups/Capacity Categories/Work Skill Conditions Usability Issues Addressed

– The 'Edit work skills' window in the 'Work Skill Groups' and 'Capacity Categories' screens now have a search field and a scroll bar which enhances their usability (Figure 57-58).

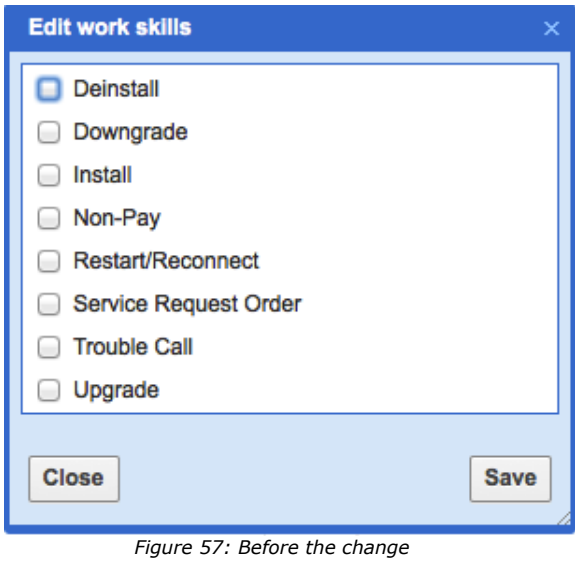


Figure 57: Before the change

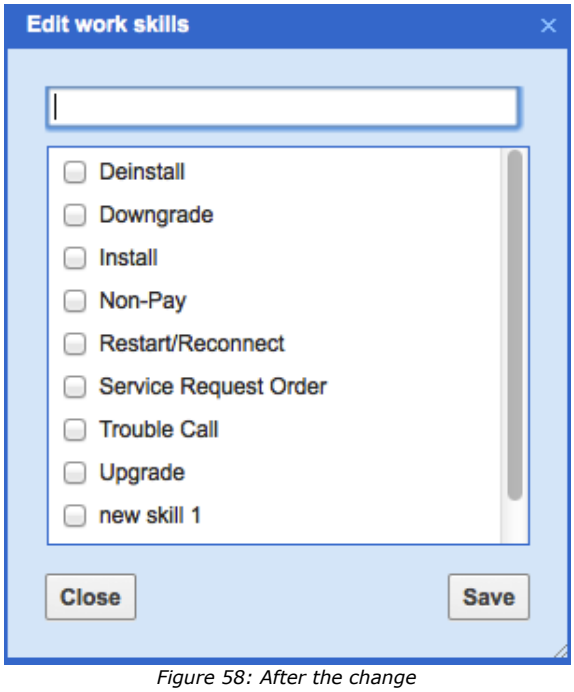


Figure 58: After the change

– The process of adding work skills via the 'Resource Info' screen has been refined and no longer creates errors.

2.9.33.4 Property Editing Restrictions Removed

When an enumeration property value had an index containing special symbols or html tags, such value was not displayed in the 'Values' list of such property. This issue has been resolved and now enumeration properties can be added or modified in a proper manner.

2.9.33.5 'Inventory type' Property Removed

As of ETAdirect version 4.5, the inventory types are created in a dedicated 'Inventory types' screen. Therefore, the 'inventory type' property has become obsolete and, thus, its logic has been removed.

2.9.33.6 Mandatory 'Label' Field Added to 'Login Policy' Screen

As of ETAdirect version 4.5, the 'Add Policy' and 'Edit Policy' screens contain the 'Label' field which is mandatory for any login policy creations and modifications (Figure 59). The 'Label' field requires a unique entry which is checked against the labels existing in the system. A login policy without a label or with a label already used for another policy will not be saved.

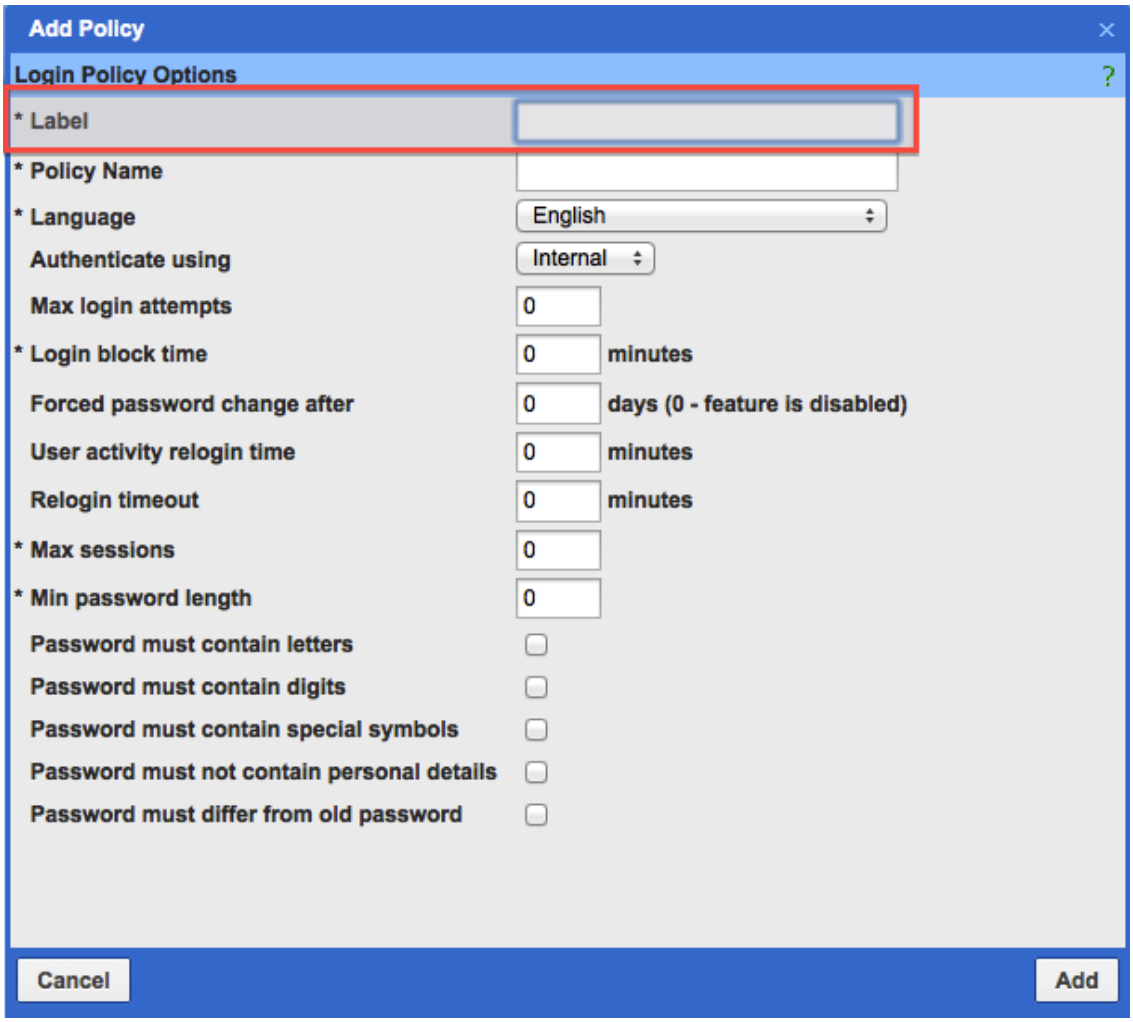


Figure 59: Mandatory 'Label' field in 'Add Policy' screen

2.9.33.7 Option of Activity Property Style Customization Added

The options of context layout structure editing have been enhanced by adding the possibility of selecting the font style, font size and color of the activity identifier text. For this purpose a new section has been added to the 'Context layout structure' screen where the font style (bold, italic), size (large, normal, small) and color (selectable from the color chart) can be defined (Figure 60).

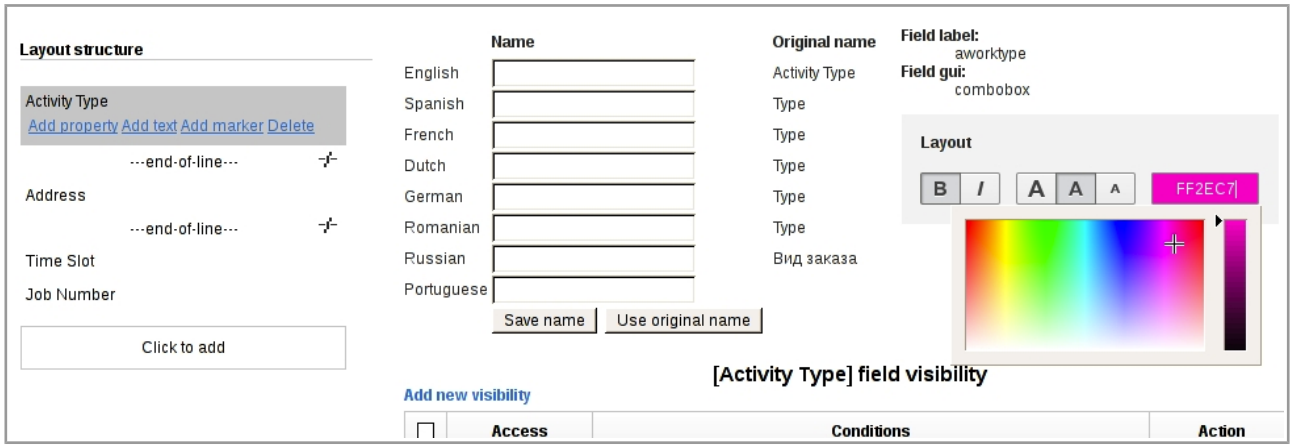


Figure 60: Style customization section of context layout structure screen

Now different identifier items can be shown in different fonts (regular, bold, italic), font sizes (small, normal, large) and in different color (Figure 61). This way the most important items of the activity identifier can be emphasized and the overall transparency of the activity identifier can be increased.

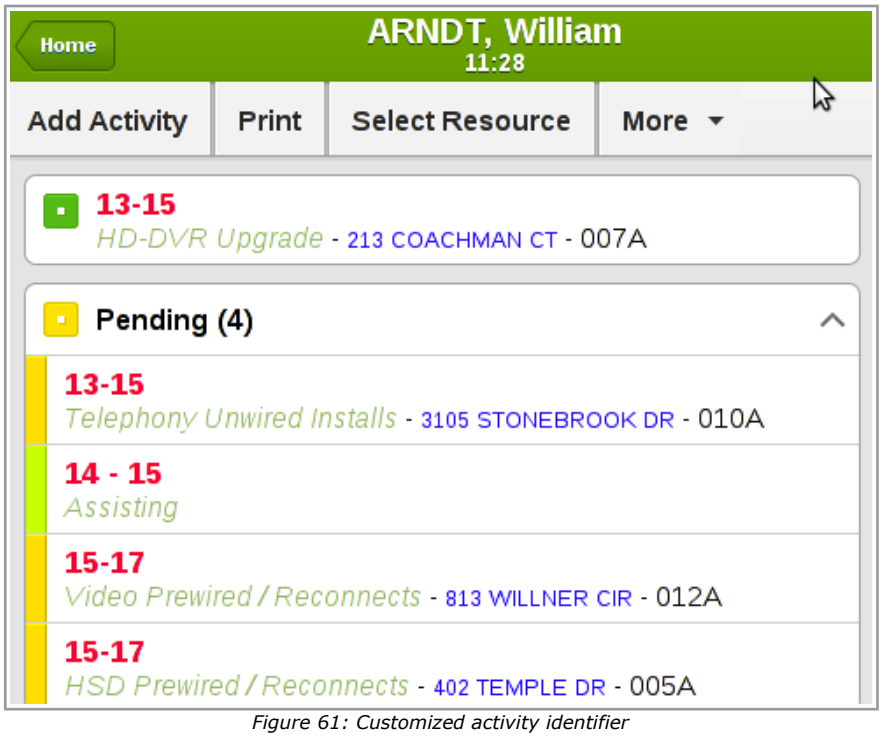


Figure 61: Customized activity identifier

2.9.33.8 'End-of-line' Marker Added to the 'Identify activity by' Context Layout Structure

In the new version of ETAdirect the 'Add marker' link has been added to the property structure in the 'Identify activity by' context layout. Clicking 'Add marker' offers the insertion of the end-of-line marker before or after the selected property, which will cause the text to start with a new line (Figure 62).

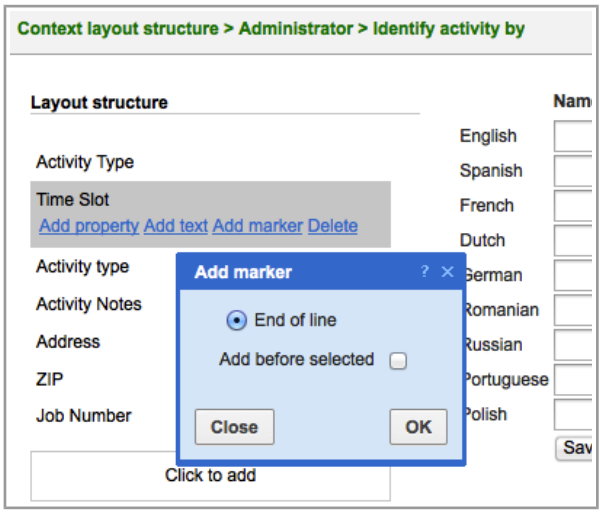


Figure 62: 'Add marker' link and window

2.9.33.9 Filter Improvements

ETAdirect has a possibility of displaying the resources on duty at a certain time by means of the 'Is working at' filter. This filter returned incorrect results not displaying the resources which were working at the time defined in the filter condition. This has been fixed by adding the option of interpreting different time formats entered as the filter condition, and in version 4.5 the filter works properly.

2.9.33.10 Shifts Label Length Warning Added

The shift label name length is limited to 32 characters. For any shift label name longer than 32 characters only the first 32 characters were saved but no warning messages were displayed. In version 4.5 any shift label names longer than 32 characters are no longer saved and an error message is displayed (Figure 63).

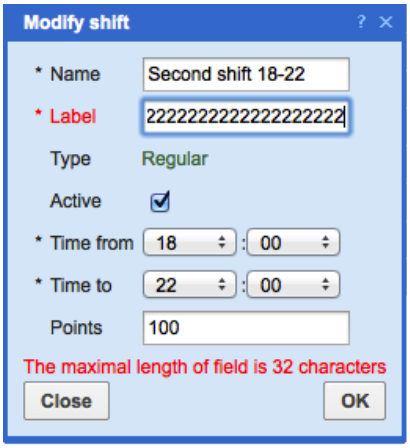


Figure 63: Error message for shift labels longer than 32 characters

2.9.33.11 'Routing Plan' Window Redesigned

As of ETAdirect version 4.5 several aspects of the 'Routing plan' window have been redesigned:

- the 'Reoptimization' section has been added which is used to configure the 'Reoptimization' functionality parameters (Figure 64)

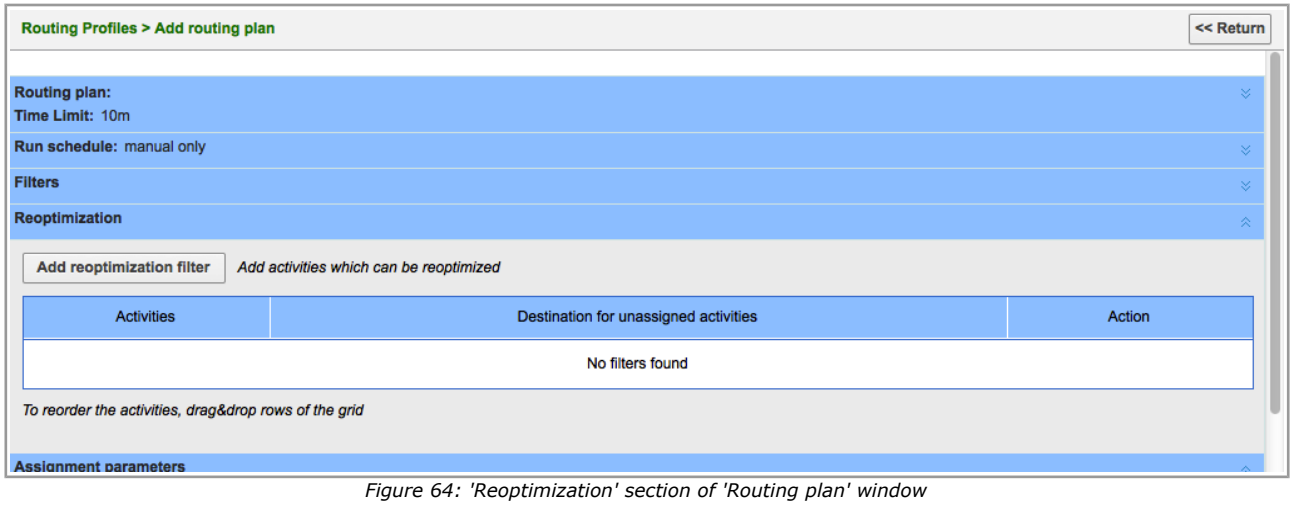


Figure 64: 'Reoptimization' section of 'Routing plan' window

- with the introduction of the 'Routing by inventory' feature the 'Enable routing by inventory' checkbox has been added to the 'Dynamic routing' tab of the 'Add/Edit routing plan' dialog (Figure 65).

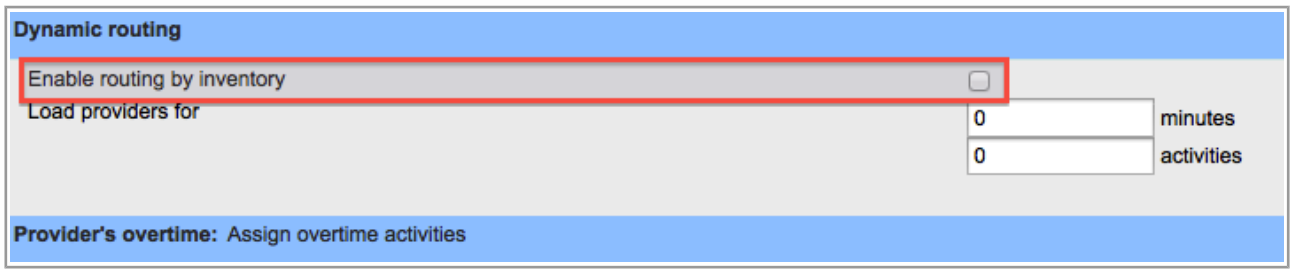


Figure 65: 'Enable routing by inventory' checkbox

- the 'Route uniformity' checkbox in the 'Assignment parameters' tab of the 'Add/Edit routing plan' dialog has been renamed to 'Try to schedule activities to service window start' (Figure 66). This checkbox is now accompanied by the following comments explaining the consequences of the selected action:

  Enabling this option may lead to:

  - Idle time left closer to the service windows ending
  - Increased summary travel time
  - Increased summary work time
  - Increased number of resources that get activities assigned

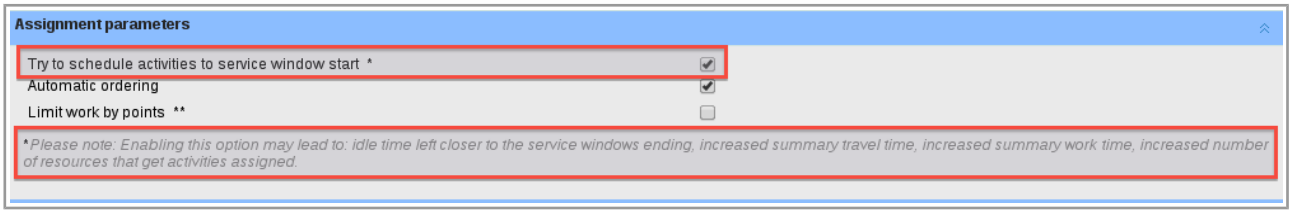


Figure 66: New design of 'Assignment parameters' section

– the values of the 'Time limit' field have been rearranged in the ascending order (Figure 68). In the previous version the values were out of sequence (Figure 67).

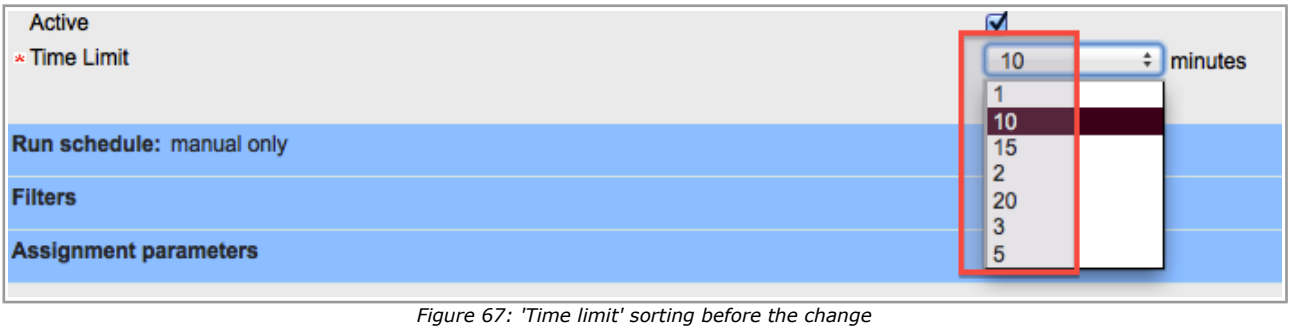


Figure 67: 'Time limit' sorting before the change

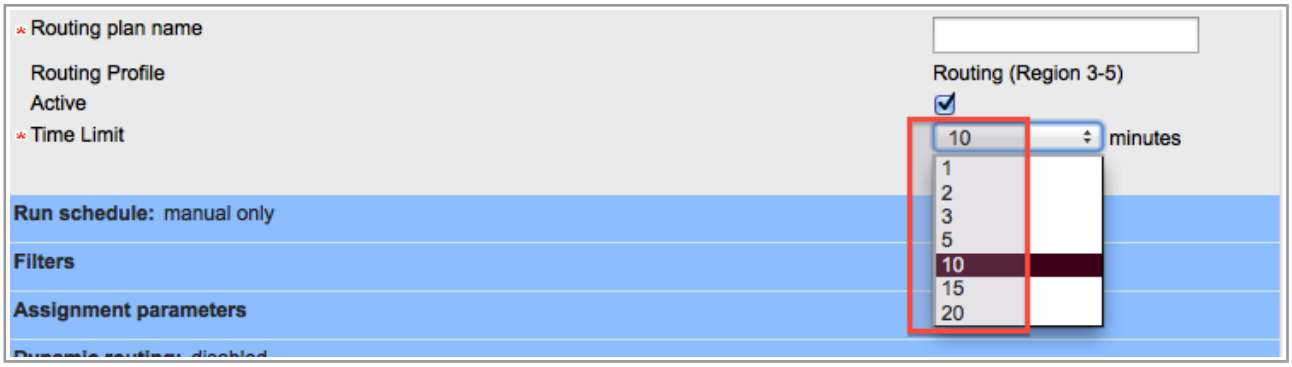


Figure 68: 'Time limit' sorting after the change

2.9.33.12 'Default Rows Number in List' Parameter Removed as Obsolete

The 'Company Settings' → 'Display' screen had a mandatory parameter 'Default rows number in list' defining the number of rows to be shown in one list (Figure 69). With the introduction of infinite scrolling this parameter has become obsolete as a list may include any number of rows. Thus, this setting has been removed from the 'Display' screen (Figure 70).

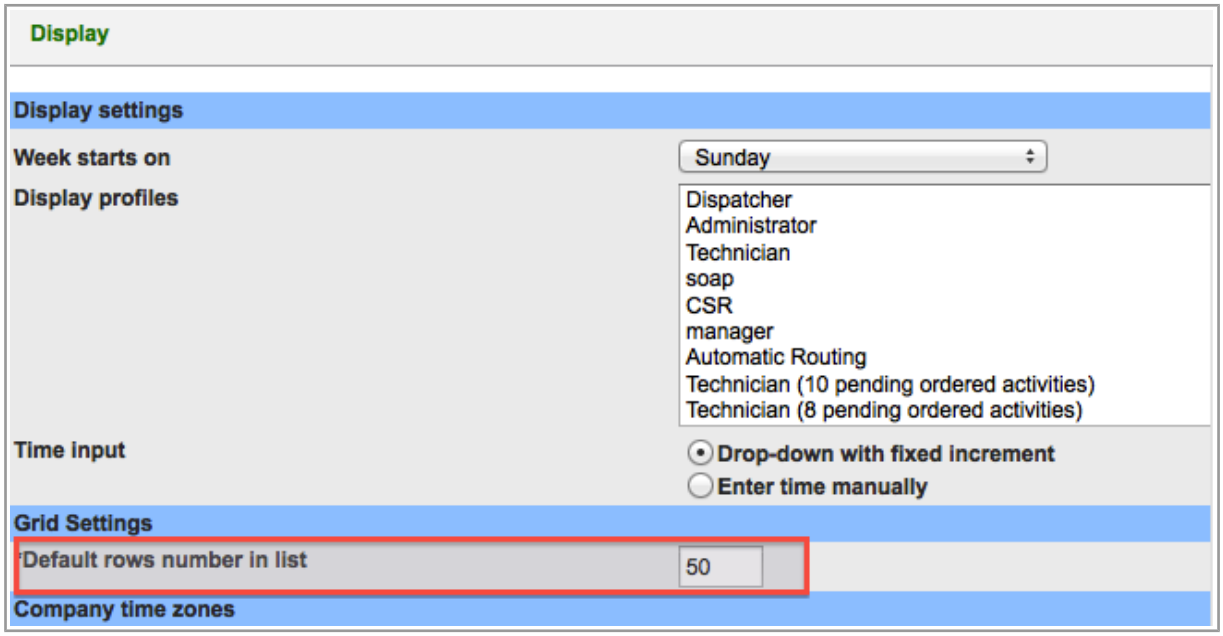


Figure 69: Display screen in version 4.4

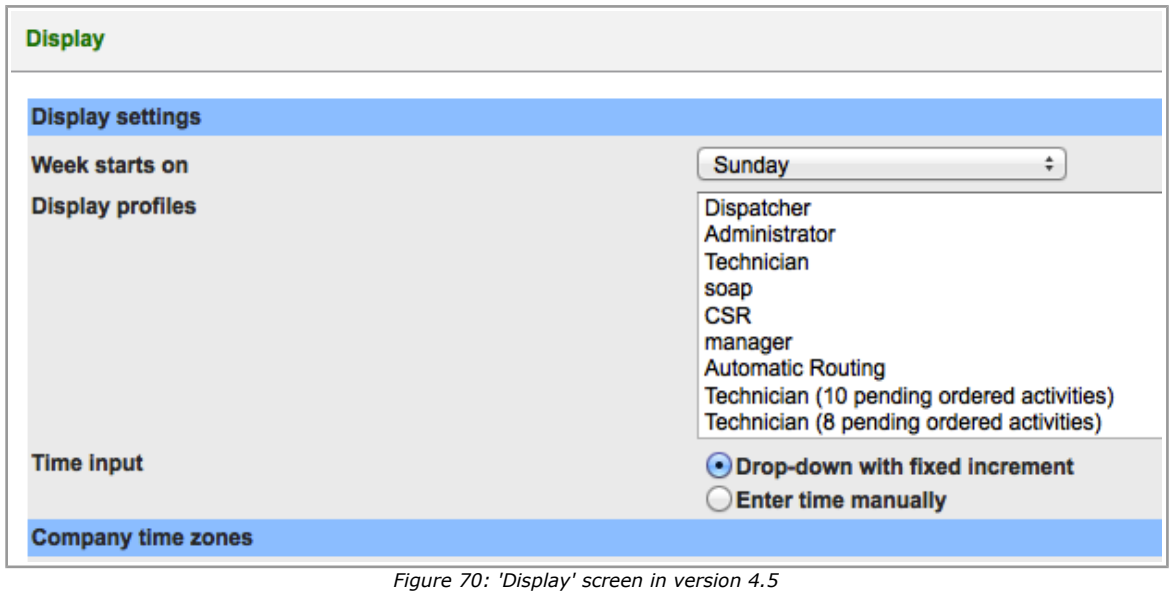


Figure 70: 'Display' screen in version 4.5

2.9.34 API Configuration Screen Implemented

In order to separate display profiles configuration and API profiles configuration ETAdirect now has a new dedicated screen, 'API Configuration' (Figure 71). Such new arrangement allows granting access to API profiles configuration only to certain users which ensures more correct configuration and prevents errors.

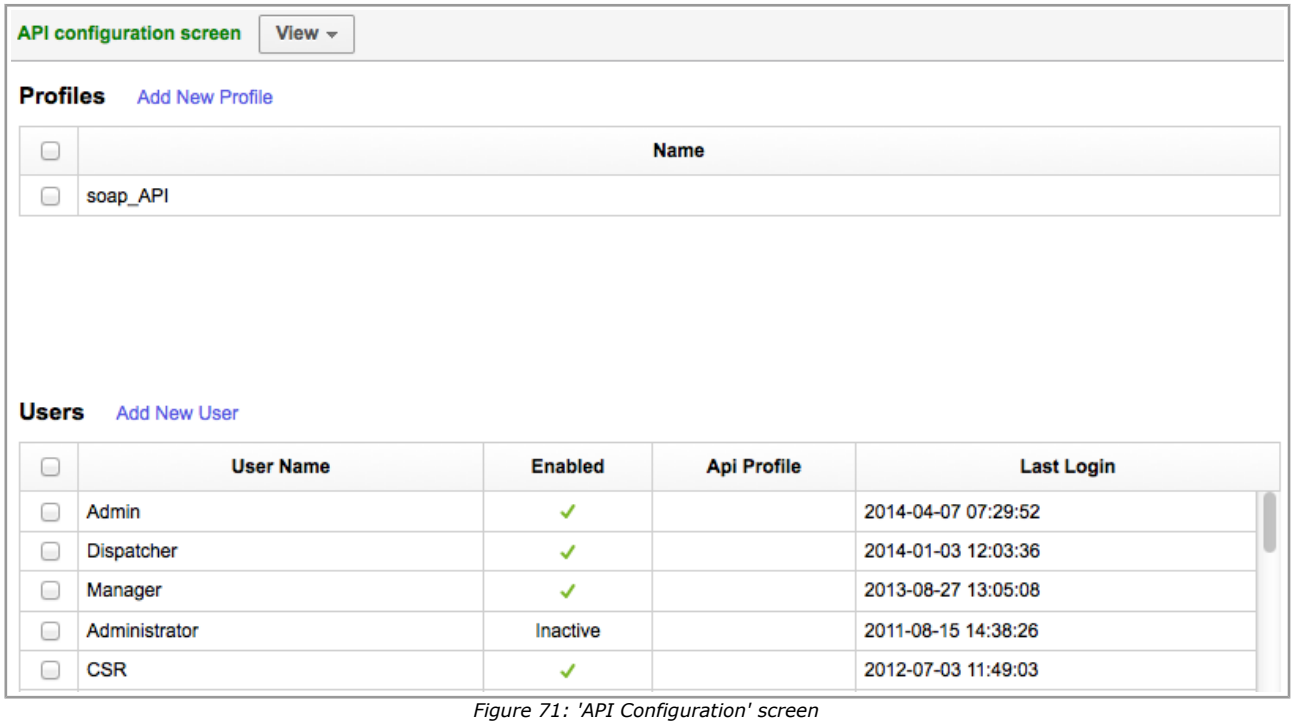


Figure 71: 'API Configuration' screen

The 'API Configuration' screen provides the ability to create new API profiles and to assign them to users. For new API profiles layouts can be added and for existing API profiles they can be modified. Each API profile layout defines the contexts the user is allowed to manage and their structure (properties) (Figure 72).

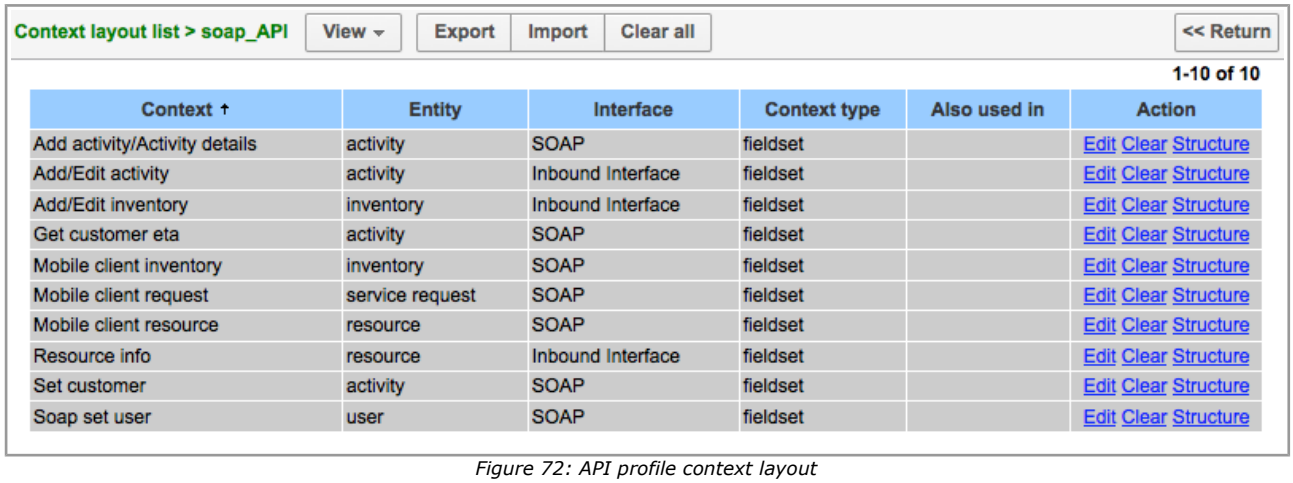


Figure 72: API profile context layout

Access to the 'API Configuration' screen and its functions is controlled by the new permission, 'API Configuration', added to the 'Permissions' tree.

2.10 SmartCollaboration Issues

2.10.1 Activity Move Usability Improved

- The SmartCollaboration feature of activity move between users via the chat has been adjusted for

better usability. Before, when a shared activity was moved to another resource via a SmartCollaboration chat there was no indication of the move and it could be dragged from the chat again. However, such second move was accompanied with an 'Error occurred. Wrong data' message which did not provide a clear explanation of the move error.

In version 4.5 an attempt to move an already moved activity is accompanied with a 'This activity has been reassigned' message which is much clearer for the user (Figure 73).

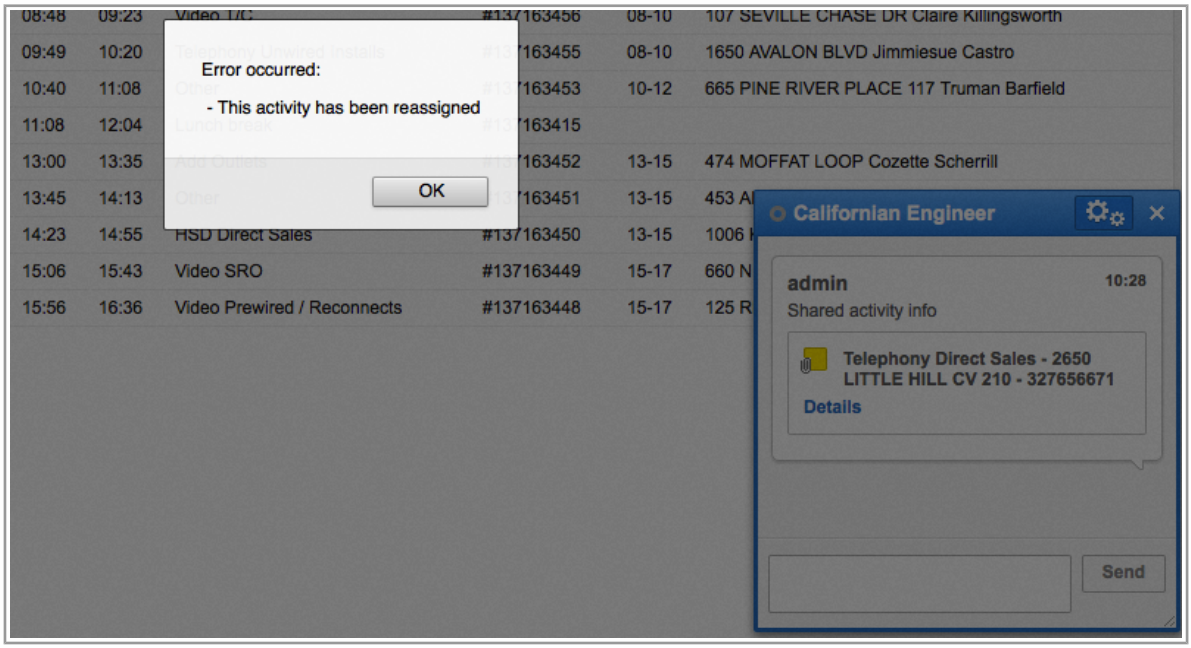


Figure 73: Error message for activity move from chat

– When several activities checked in the List View were dragged to the chat, the message box was highlighted yellow showing that such move was possible. However, this is not allowed and the activities were not moved to the chat (Figure 74).

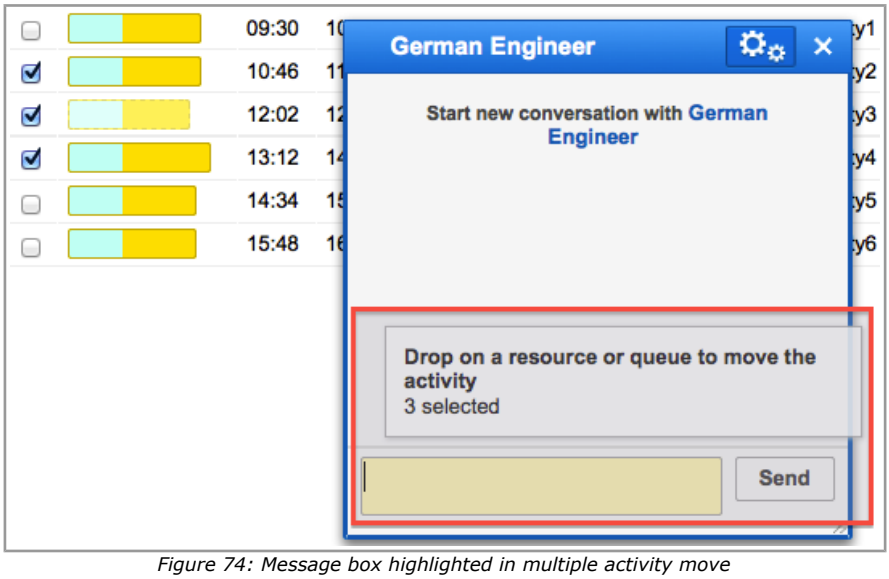


Figure 74: Message box highlighted in multiple activity move

This illogic behavior has been improved and now the message box is no longer highlighted when several activities are dragged.

2.10.2 Community Window Improved

The Community window appeared rather confusing when there were many messages in it – the message lines were interrupted by the address book entries, the content was generally mixed up and the window borders were in wrong places (Figure 75).

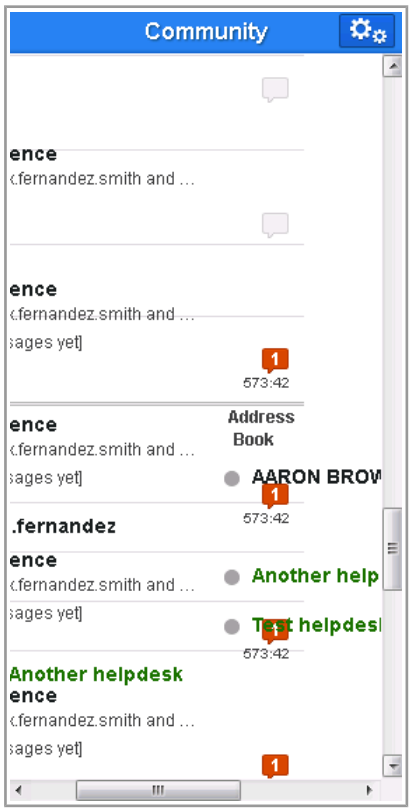


Figure 75: Disorganized 'Community' window

In version 4.5 this issue has been addressed and now the 'Community' window looks properly.

2.10.3 'Community' Window Resize Functions Properly

- In some cases the 'Community window was displayed incompletely after resizing. Some important items, like header or message box, were invisible and inaccessible (Figure 76).

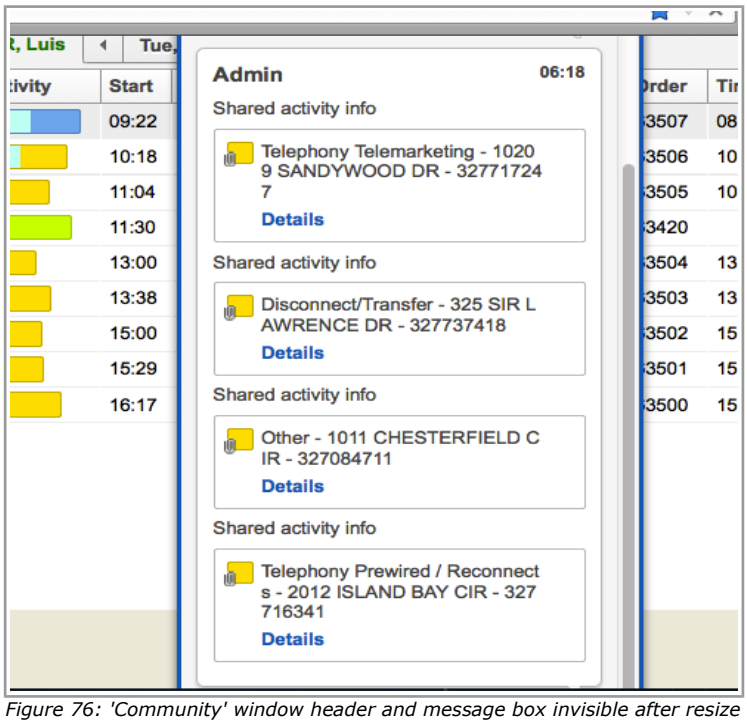


Figure 76: 'Community' window header and message box invisible after resize

This issue has been resolved in version 4.5. The window can now be resized with all its components remaining accessible.

2.10.4 'Community' Window Functionality Improvement

In the previous versions a new 'Community' window used to open automatically whenever a new message was received. Such behavior could interfere with other applications. Now a new window is opened only when the first message is received and afterwards any new incoming messages are indicated by the message counter.

2.10.5 SmartCollaboration Disabled in Offline Mode

The SmartCollaboration functionality is not designed for offline work but, nevertheless, its windows were available and accessible in the offline mode for the Mobility Application. This was illogic and misleading and now, whenever the Mobility Application is used offline, the SmartCollaboration windows are disabled.

2.10.6 'Start Chat' and 'Chat with Technician' Actions Now Available from Resource and Activity Hints

When the 'Start Chat' and 'Chat with technician' actions are added to the resource or activity hint by modifying the 'Visible hint columns for technician/bucket' or 'Visible hint columns for activities' contexts, the corresponding links must appear in the resource or activity hint (Figure 77). However, this was not the case in the previous version of ETAdirect – although the appropriate changes were made to the context layout structure, no action links appeared in the hints (Figure 78).

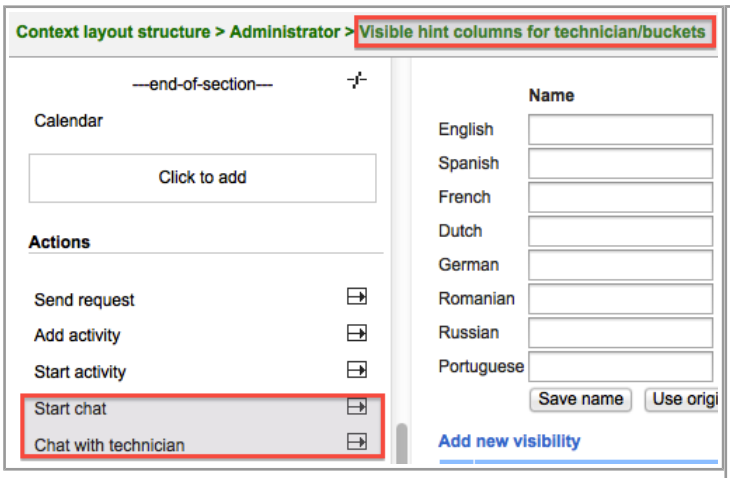


Figure 77: Actions added in the context layout

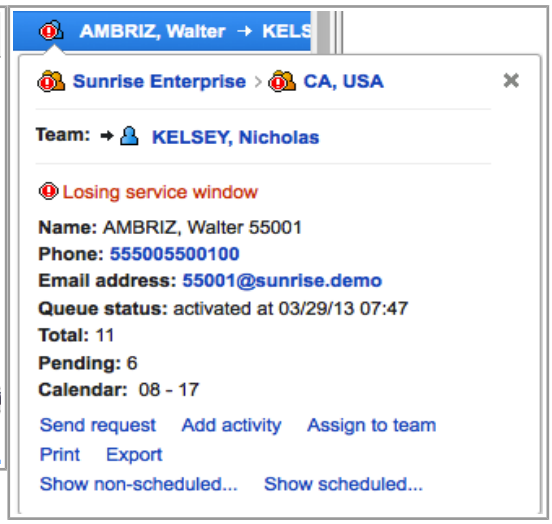


Figure 78: Resource hint showing no chat links

This issue has been resolved in version 4.5 where the resource and activity hints display the chat links according to the display profile settings (Figure 79-80).

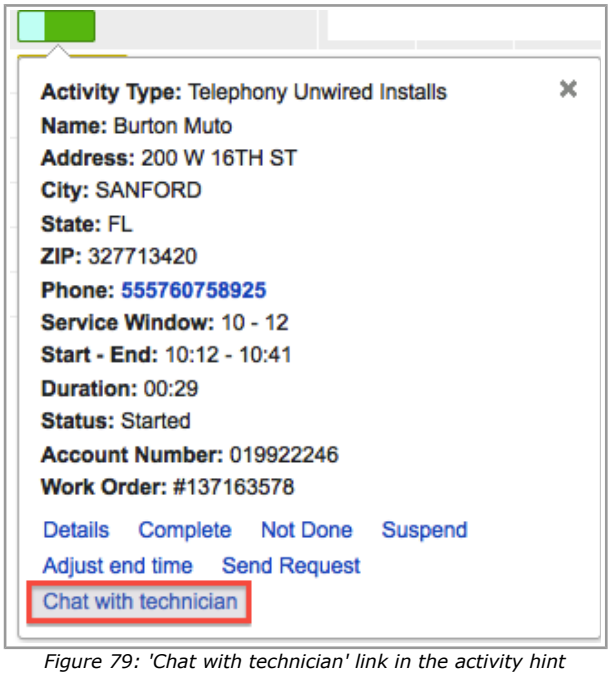


Figure 79: 'Chat with technician' link in the activity hint

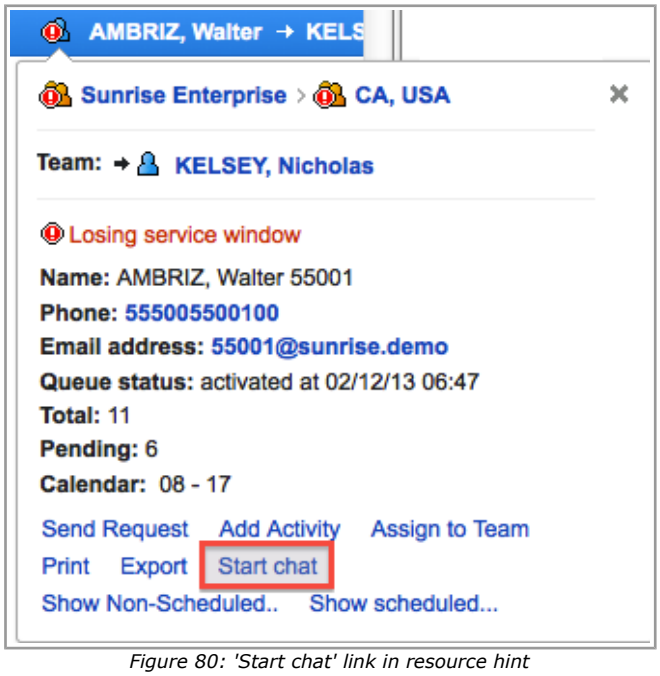


Figure 80: 'Start chat' link in resource hint

2.10.7 SmartCollaboration Drop-Down Menu Improved in Mobility Application

The Community options drop-down list remained open even when other actions were being performed in the Community window sometimes blocking other parts of the chat (Figure 81).

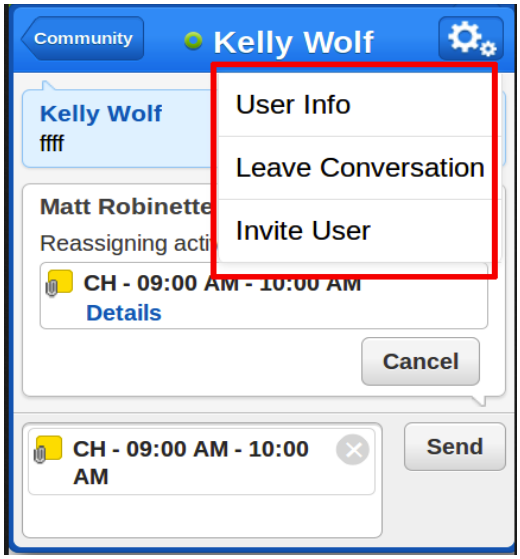


Figure 81: 'Community' window in Mobility Application with drop-down list open

This has been fixed and in version 4.5 such behavior is no longer observed.

2.10.8 Support of User Logins Containing Special Symbols

In the previous versions the SmartCollaboration functionality was not working for users with logins containing special symbols, such as '&' or '?'.

This issue has been addressed in version 4.5 and now a user login can contain any Latin letters of both registers, any special symbols except '@', and any digits.

2.11 Map Issues

2.11.1 Activity Hint Links in Map View Improved

In the Map View activity hints can be displayed from the activity markers either in the map or in the list in the right part of the screen. In the Map View of a bucket with the 'Apply hierarchically' option enabled the hint in the list contained the 'Select technician' link while the same activity hint in the map did not. This issue has been addressed, and in version 4.5 both hints offer the 'Select technician' link (Figure 82).

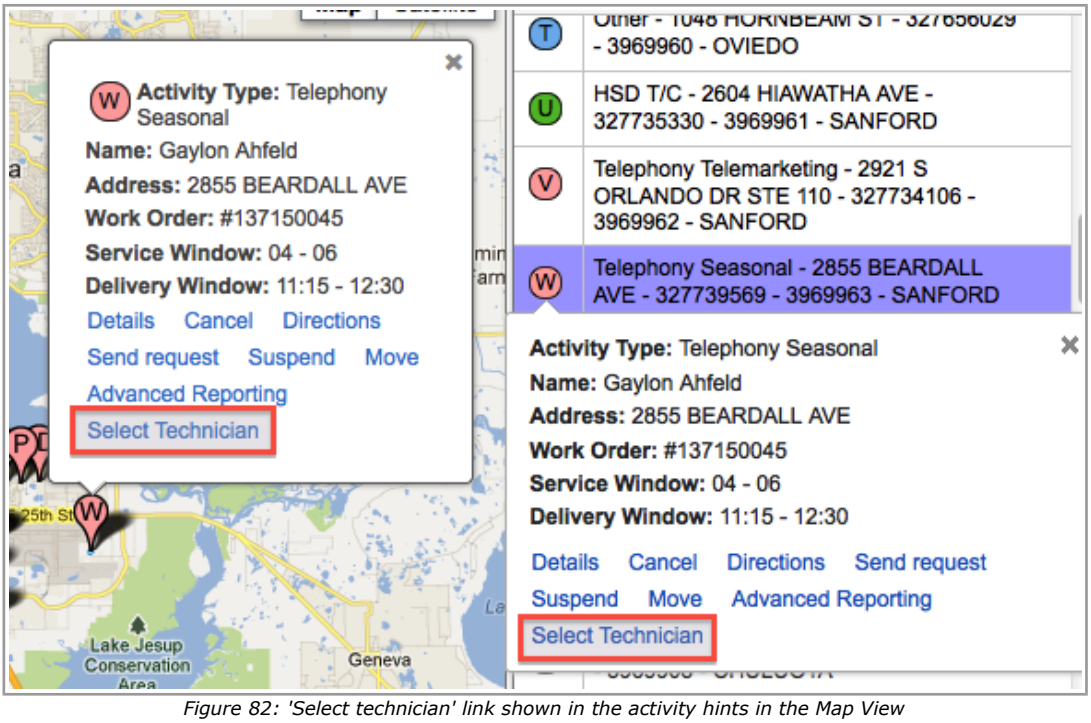


Figure 82: 'Select technician' link shown in the activity hints in the Map View

2.11.2 Map Behavior Improved for Resources with Only Non-Scheduled Activities

In the earlier versions when a resource only had non-scheduled activities the Map View for such resource showed the Pacific Ocean. This behavior was illogic and misleading.

In version 4.5 the Map View requested for a resource having only non-scheduled activities leads to the following message: 'The map cannot be displayed due to unscheduled tasks' (Figure 83).

Figure 83: Error message in the Map View

2.11.3 Activities with Invalid Coordinates Marked in Red Everywhere in Map View

In the previous versions the activities with correct coordinates but falling outside the company boundaries were marked in red on the Map, but had no color differentiation in the activities list.

In version 4.5 activities with invalid coordinates are marked in red both on the Map and on the activities list, which ensures the consistency of the application appearance.

2.11.4 Activities with Invalid Coordinates Shown on Map

As of ETAdirect version 4.5 the activities with correct coordinates but falling outside the company boundaries are also shown on the Map and are highlighted in red. They also have the 'Directions' link showing the driving directions (Figure 84).

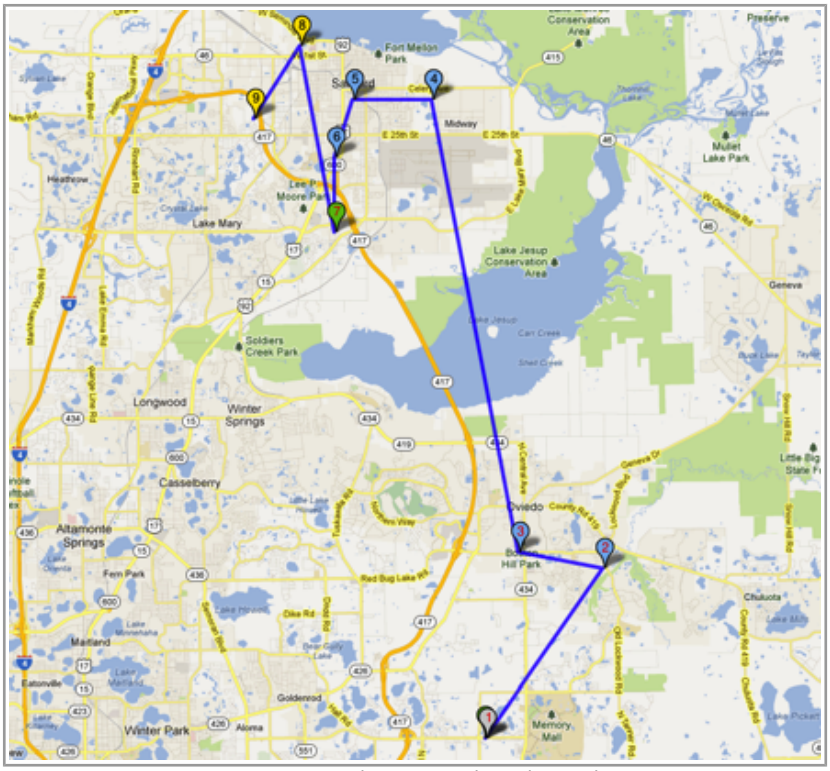


Figure 84: Activities outside company boundaries shown on Map

2.11.5 'Street View' Available in Mobility Application

In the previous version the Street View in the Map screen of the Mobility Application was not available. In version 4.5 the appropriate changes have been made and now the Street View is available (Figure 85).

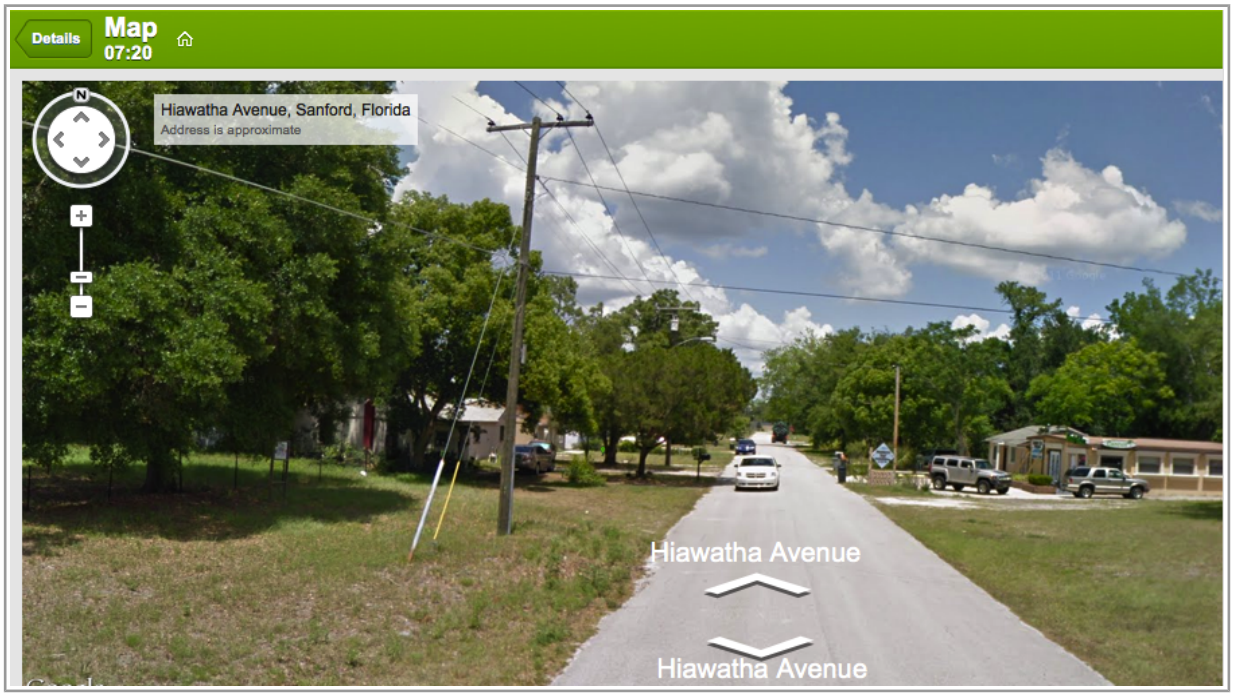


Figure 85: Street View in Mobility Application

2.11.6 Map Displayed with Only Resource's GPS Coordinates Available

In addition to displaying the Map in the Mobility Application when GPS coordinates of activities were available, ETAdirect now supports Map display when the only GPS coordinates available are the resource's coordinates.

Now, the system checks if the resource's coordinates are available and that the resource has today's date on their calendar. If these conditions are satisfied, the Map is shown.

2.11.7 'Hide Map' Button Added to Map Display in Activity Details in Manage Application

When a picture is associated with an activity for which the geolocation is available, a user can view the location on the map by clicking the 'Show on map' button next to the picture. In the previous version repeated clicking 'Show on map' in the 'Activity details' screen displayed multiple maps in the 'Activity details' screen in the Manage Application.

In version 4.5 this issue has been resolved. Now, as soon as the map has been displayed, the 'Show on map' button is replaced with the 'Hide map' button which hides the map (Figure 86-87). Multiple maps are no longer displayed in the Manage Application.

Figure 86: 'Show on map' button

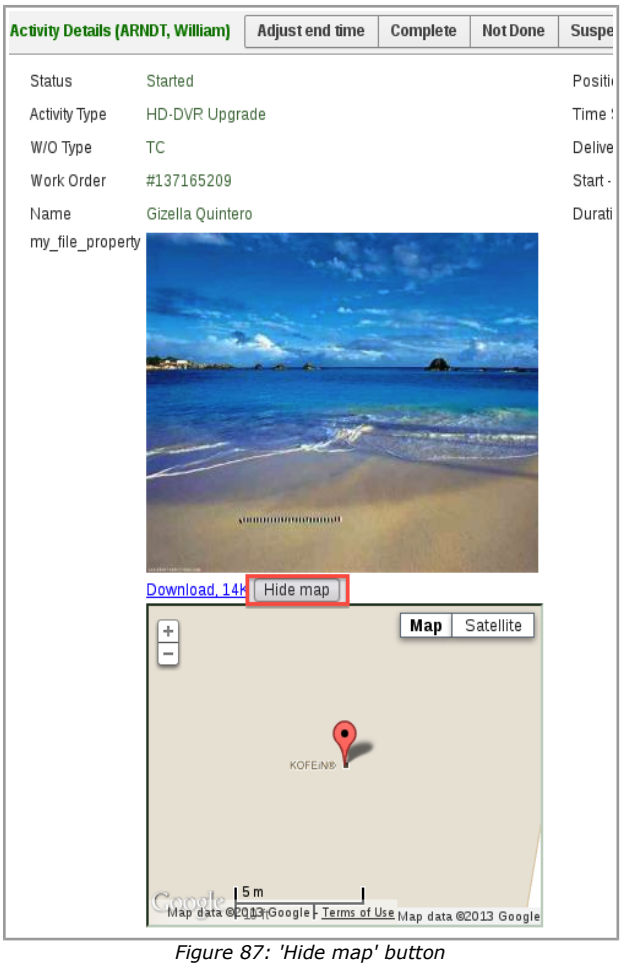


Figure 87: 'Hide map' button

2.12 Statistics

2.12.1 Activities with 'Define Duration Manually' Option Now Included in Duration Statistics

In order to increase the accuracy of duration statistics calculation, this statistics now includes completed activities with the 'Define duration manually' option enabled. Previously such activities were not accounted in statistics calculations.

2.13 Message Engine

2.13.1 'Points' Field Now Updated with 'set_property' Method

In version 4.5.0 the 'Points' field can be update with the 'set_property' method of a message scenario. Previously, when 'set_property' was applied to update the 'points' field value, the 'Wrong field' error message was returned. Now the 'Points' value is updated properly.

2.14 Mobility Application

2.14.1 Tile and Multi-Screen Modes Introduced for Mobility Application

As of version 4.5, ETAdirect offers the tile and multi-screen display modes for the Mobility Application. In the tile mode the data is arranged in columns from left to right filling the entire screen space. In the multi-screen mode the same columns are displayed on separate screens which can be shown one after the other.

This increases the usability of the Mobility Application by providing a more focused data display and the most optimum screen space use.

The user can select the desired display mode from the drop-down list in the 'User options' screen (Figure 88). At the moment this functionality is available for the 'Activity Details' and 'Inventory Details' screens.

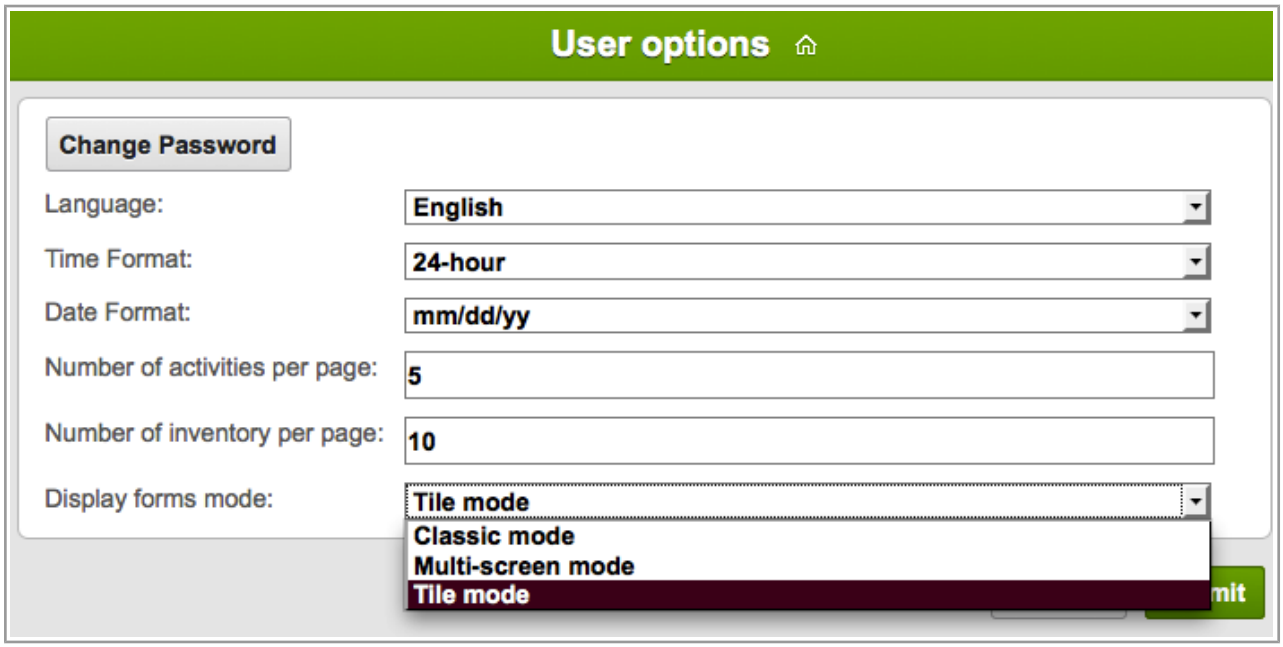


Figure 88: Display mode selection in 'User options' list

When the desired option is selected, the 'Activity Details' and 'Inventory Details' screens will be

immediately displayed in the selected mode (Figure 89-91).

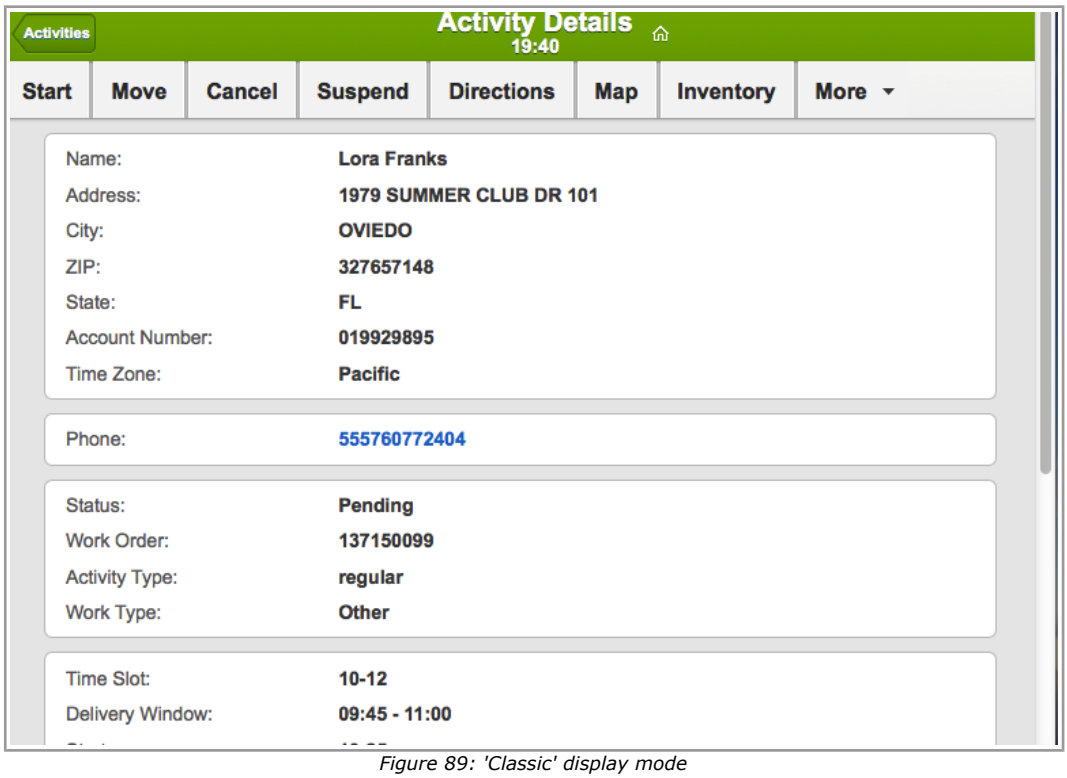


Figure 89: 'Classic' display mode

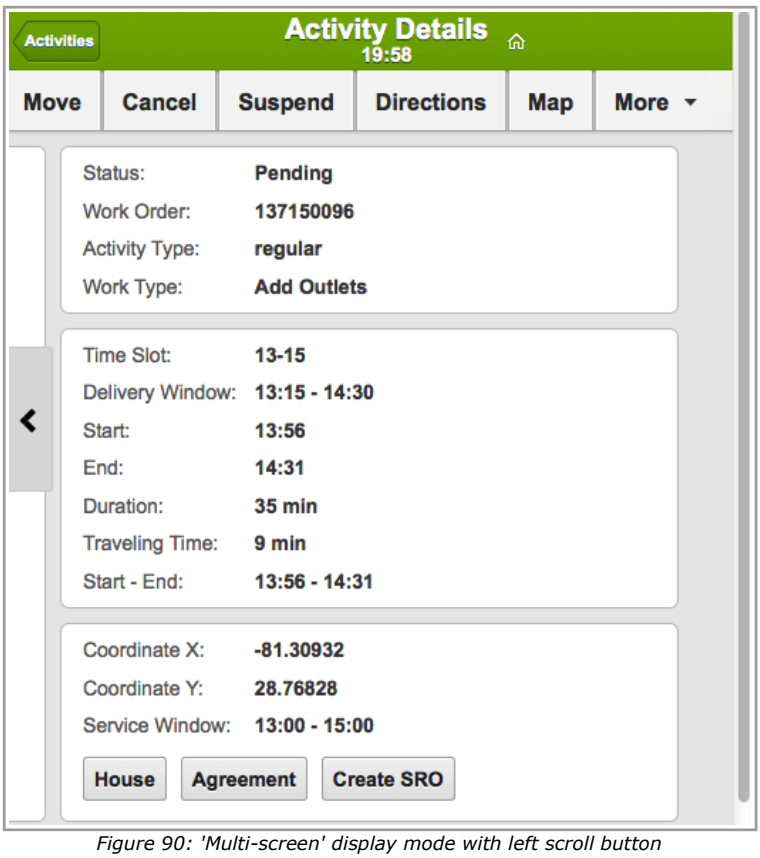


Figure 90: 'Multi-screen' display mode with left scroll button

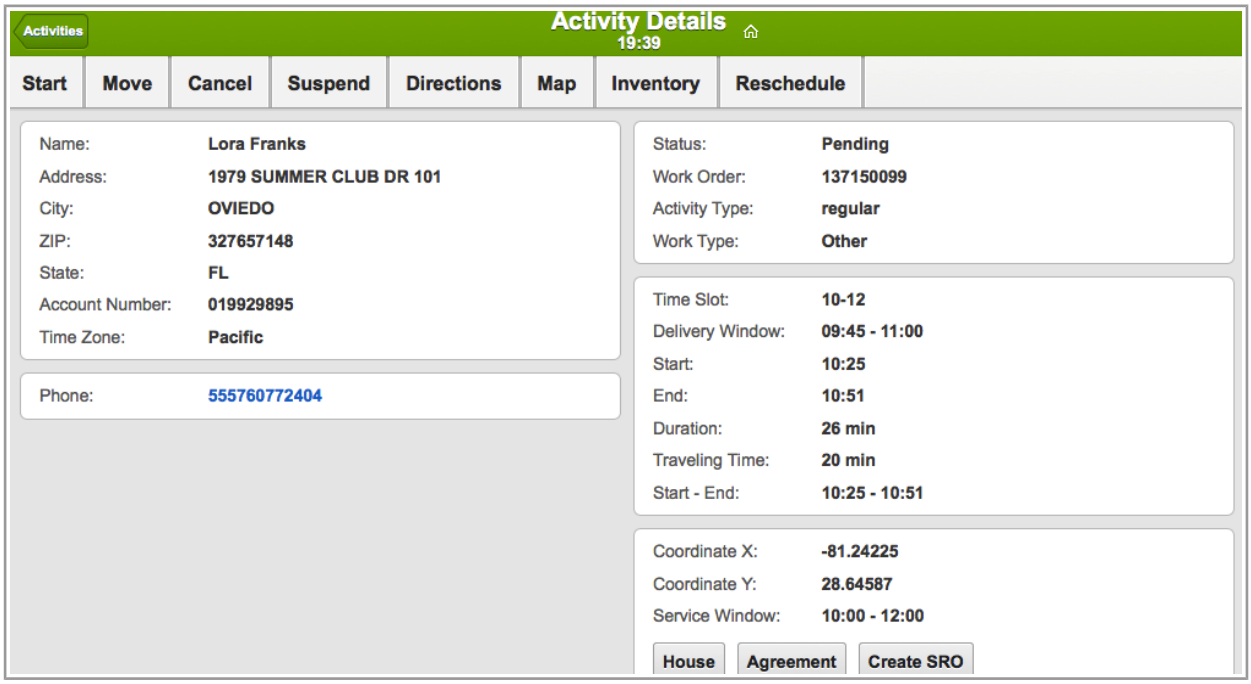


Figure 91: 'Tile' display mode

In order to implement the tile and multi-screen modes the end-of-column marker has been introduced in the 'Add/View activity' and 'Add/Details inventory' context layouts (Figure 92). This marker, when inserted between two properties or actions in the context layout structure, will cause a new column to be started at the corresponding spot on the screen.

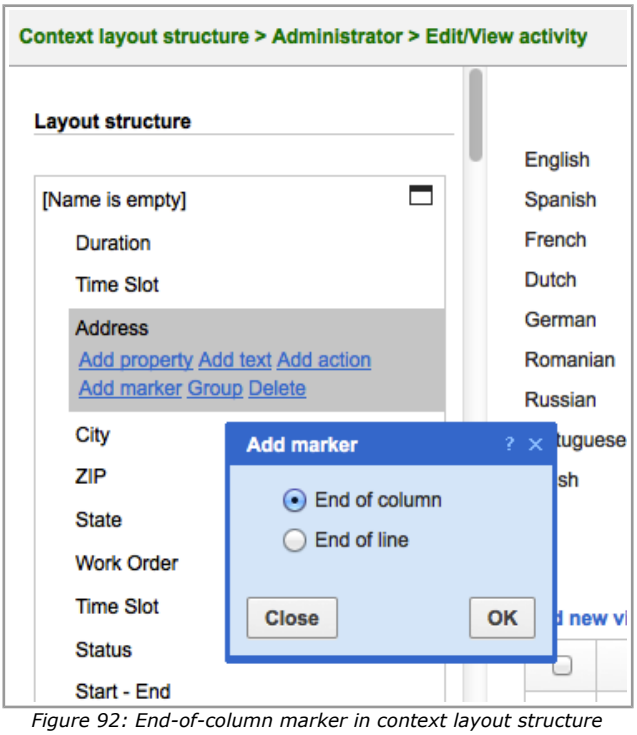


Figure 92: End-of-column marker in context layout structure

2.14.2 Mobility Application Screens Behavior Optimized

Sometimes the 'Back' button of the browser caused the 'Resource Search' field to appear in the screens it did not belong to (for example, 'Inventory details', 'Move activity', etc.). This issue has been addressed and the search field is hidden from the screens where it is not required.

2.14.3 Login Policy Rules Adjusted

One of the settings defined within the login policy is the number of login attempts allowed to a user before he/she is locked and unable to login anymore. Another security feature is the automatic logout when the application is idle for a certain predefined time period. When a user is logged out, he/she needs to login again with the same maximum number of login attempts as for the initial login. However, this was not the case in the previous versions of the Mobility Application where the number of relogin attempts was unlimited.

This issue was addressed in ETAdirect version 4.5 which now has uniform login policy rules for all login situations.

2.14.4 Surefox Compatibility Improved

The Mobility Application of ETAdirect version 4.5 offers enhanced compatibility with the Surefox browser. Some usability issues which were found in the previous versions have been fixed.

2.14.5 Picture Capture Functionality Improved

In the previous version the geolocation coordinates and size of an image captured with the mobile device were lost after the image submission. Even when the geolocation was enabled (the 'Get geolocation' checkbox was checked) the map containing the marker corresponding to the image location would disappear from the screen.

Such behavior is no longer observed in version 4.5 and the map remains displayed on the screen.

2.14.6 Activity Reorder Improvement

When an activity's order was changed in the Mobility Application (its 'Position in route' was changed) the resulting list of activities contained duplicate entries (Figure 93).

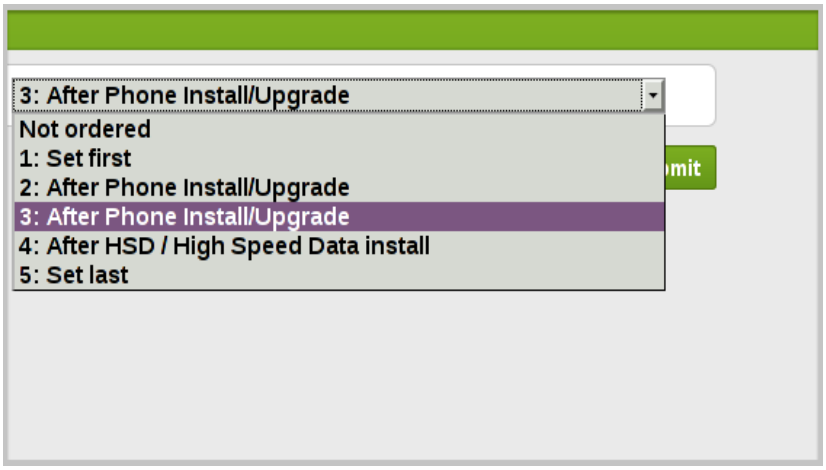


Figure 93: Duplicated entries in activities list

In this version the logic of this functionality has been changed and now the 'Position in route' list is formed and displayed correctly.

2.14.7 Surefox and Firefox: 'Change Calendar Details' Functionality Improved

In the previous versions when the Mobility Application of ETAdirect was used in the Surefox browser, the 'Change calendar details' function requested for a future date actually displayed today's date. In the Firefox browser the 'Change calendar details' function, in fact, made no changes to the calendar details. These issues have been addressed in ETAdirect version 4.5 and the calendar in the Mobility Application now functions properly.

2.14.8 Actual Operation Time Recorded in Activity History

As of ETAdirect version 4.5.0 the Mobility Application has been changed to provide the time stamp of the operations performed by the user. The operations are logged to the Activity History in the resource's time zone.

2.14.9 Mobility Synchronization Errors Logged in Activity History

Mobile Application synchronization errors are logged in the Activity History which improves control and monitoring of the operations in the Mobility Application.

2.14.10 Non-Scheduled Activity Start Implemented

If a resource has an active route, but such route contains no started activities at the moment, the user is now able to start a non-scheduled activity. If the user tries to start such non-scheduled activity, it is moved into the today's route and can be started and further handled as any other pending activity in the resource's route. In this case, any occurring work skill mismatch or work zone mismatch is ignored.

2.15 Public API

2.15.1 Resource Management API – Login Policy Label Used

As of version 4.5.0, the Resource Management API uses login policy label in the methods setting login policies for users and retrieving their login policies. The following methods now use the login policy label:

- insert_user
- update_user
- get_user
- get_users_list

2.15.2 SOAP API Authentication Structure Changed

With the change of the authentication format in ETAdirect, the 'user' authentication structure used in all SOAP requests has been changed. Now the 'company' field accepts the instance name instead of the company name. The 'user' structure now has the following format:

```
<user>
  <now>2014-08-14T16:54:35Z</now>
  <login>soap</login>
  <company>in132</company>
  <auth_string>4f60b5732e8a6b7092c2f04f34f6cc51</auth_string>
</user>
```

2.15.3 Inbound API – Required Inventory Supported

The Inbound API now supports required inventory. The 'appointment' structure now has a new element, 'required_inventories', which is an array of 'required_inventory' elements.

Each 'required_inventory' element contains the data of required inventory for the current activity:

- type – inventory type label
- model – inventory model
- quantity – number of inventories required for the activity

The 'model' value is validated according to the rules of 'Model Property' of the 'Inventory Type'.

2.15.4 Activity Management API, Mobile Client API – Required Inventories Supported

The Activity Management API and Mobile Client API now support required inventory. Two new methods have been implemented:

- 'set_required_inventories', used to define required inventory for the specified activity. The request contains the following fields:
  - user – user authentication structure
  - activity_id – ID of the activity for which required inventory is to be set
  - required_inventory – array defining the required inventory and consisting of the following fields:
    - type – inventory type
    - model – inventory model
    - quantity – number of required inventories

  The response contains the data on the method success/failure.
- 'get_required_inventories', used to retrieve required inventory for the specified activity. The request contains the ID of the activity for which required inventory is to be retrieved.

  The response contains the data on the method success/failure and the following required inventory fields:
  - type – inventory type
  - model – inventory model
  - quantity – number of required inventories

3 Changes and Improvements to Version 4.5.1

3.1 4.5.0 to 4.5.1 Changes Overview

- Search/Date Restriction Removed
- Improved Alerts and Confirmations
- Main Menu Performance Improved
- New Work Zone is Created with Selected Start/End Date Format in 'My Display'
- Main Menu is no Longer Locked after Using "Quota History" and "Close Time History" Filters
- Time Slot no Longer Appears for Group Activity Action
- Capture Image Property Functionality Improvement
- Add/Edit Work Skills/Work Skill Conditions/Work Skill Groups/Capacity Categories Windows Fixed
- Editing Options for Completed and/or Past Activities Revised
- Warning for Maximal Time Interval Constraint Violation has been Added
- Effective Work Skill Recalculation Improved
- Version Number Check Between PHP Clients and Application Server
- Permission-Based Action Link Conditions
- 'Add Link' dialog window improved
- Start Activity Button is Available for Repeating Internal Activity on Activity Details Screen
- 'Nearby Activities' permissions implemented
- API Profiles Sorting Improved
- Context Layout Permissions Improvement
- Plugin Action Link Shows Properly in Display Layouts Section
- Activity Hint Now Works Correctly in Map View
- Resource Trace Displayed with Filters Applied
- Identifier Customization Section Introduced
- Customized Inventory and Request Identifiers
- Interfaces Renamed in Context Layout List Screen
- Property Visibility Modification in Context Layout Structure No Longer Produces Errors
- 'in'/'not in' Conditions of Linked Properties Work Correctly
- Visibility Tables Removed from 'Visible List Columns' Context
- Linked Properties for 'Cancel/Change Group of Activities' Context Improved
- Resource Photo Uploading Improved
- Display Layouts Export/Import Supports Linked Properties
- Main Menu Displayed Correctly after Import
- Display Profile Exported and Imported Properly
- Predefined tabs added to 'Add Activity/Activity Details' context layout
- Resource Tree No Longer Visible in 'Inventory Types' Screen
- Inventory Types Deletion/Activation/Deactivation Now Accompanied with Correct Messages
- Alphabetic Sorting of 'Model Property' Field
- 'Model Property' and 'NSI' Columns Added to Inventory Type List
- Internet Explorer – Routing Filters Improved
- Community Window Fixed in Mobility Application

- SmartCollaboration Behavior in Manage Application Improved
- 'Delete User' Action Accompanied with Confirmation Message
- Error Log Messages for SOAP Faults Now More Detailed
- 'Capture Image' Function Improved
- 'Dismiss' Button in 'Change Password' Screen No Longer Causes Logout
- Resource's Calendar Shows Correct Date
- Markers in Nearby Activities View Changed to Standard Map Markers
- Photos Can No Longer Be Added to Properties with MIME Containing No Image Types
- Mobility Application Remains Usable in Offline Mode
- Menu Items, Properties and Action Links No Longer Duplicated after Display Profile Import

3.2 Manage Application

3.2.1 Search/Date Restriction Removed

In version 4.5.1 search/date restriction has been removed. This means that if the user wants to search with no date restriction, this setting applies to this particular session only; as opposed to the previous version when it was saved by default for all future sessions.

Since it is recommended to minimize the usage of the no restriction option, starting from 4.5.1, the default setting is set to "today and future" and then if the user wants to search more extensively, the search can be set accordingly.

3.2.2 Improved Alerts and Confirmations

All of the alerts and confirmations have been replaced in 4.5.1. Now the alerts comply better with the ETAdirect design and layout (Figures 94-95).

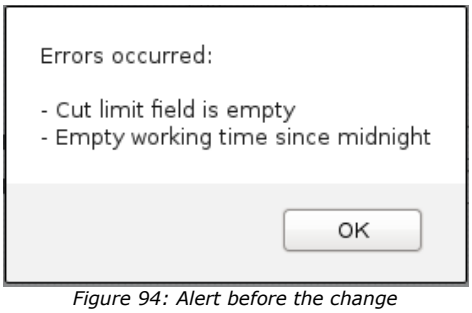


Figure 94: Alert before the change

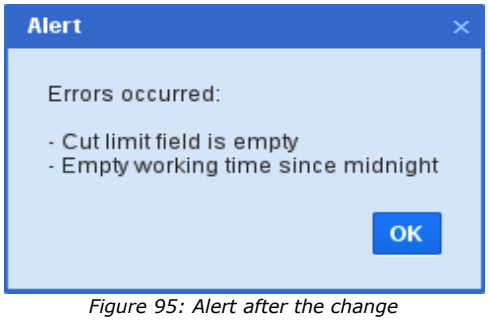


Figure 95: Alert after the change

3.2.3 Main Menu Performance Improved

- In the previous version after performing some actions on File Management modal screen and closing it, Main Menu would get locked. Consequently, this resulted in inability to perform any actions with the Main Menu until the next re-login or browser refresh.
  This behavior has been fixed in 4.5.1 and now the Main Menu gets unlocked after closing the File Management modal screen.
- Main Menu remained locked after closing modal screens that included validation errors. This has been fixed in 4.5.1 and now, the Main Menu gets unlocked after closing modals screens that had validation errors, just like it should.

3.2.4 New Work Zone is Created with Selected Start/End Date Format in 'My Display'

In previous version, the date format from 'My display' didn't get applied to 'Add new work zone' and, therefore, the user could not create a new work zone. An error message popped up, indicating that there was a wrong or empty start date (Figure 96).

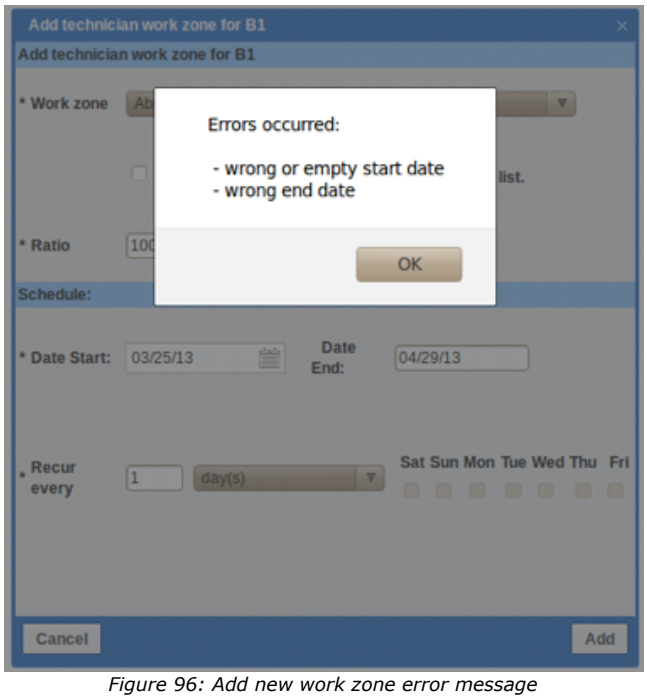


Figure 96: Add new work zone error message

This has been fixed and now the new work zone is created with the selected start/end date format from 'My display', as intended.

3.2.5 Main Menu is no Longer Locked after Using "Quota History" and "Close Time History" Filters

Main Menu got locked after changing and then closing either "Quota history" or "Close time history" filters.

This has been fixed in 4.5.1 and the Main Menu no longer gets locked after closing "Quota history" or "Close time history" filters.

3.2.6 Time Slot No Longer Appears for Group Activity Action

In previous versions during the change of group activities, the time slot appeared unexpectedly and sometimes as an empty line, instead of a combobox (Figure 97).

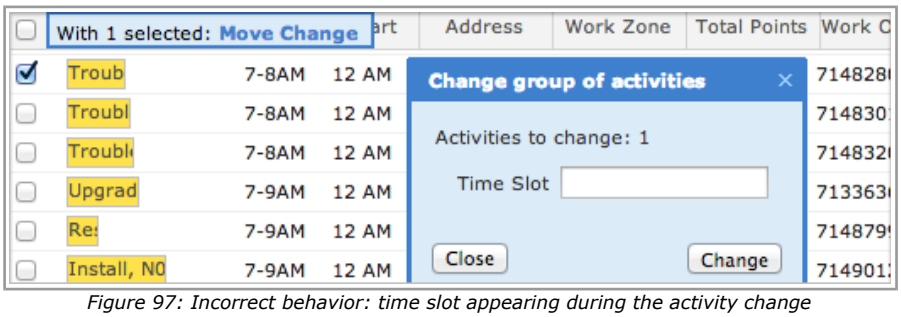


Figure 97: Incorrect behavior: time slot appearing during the activity change

As of version 4.5.1 there is no possibility to add the 'Time slot' field to the 'Change group of activities' window.

3.2.7 Capture Image Property Functionality Improvement

In previous versions, capture image property would become inactive in case there was an error or it had

been opened for modification (Figure 98).

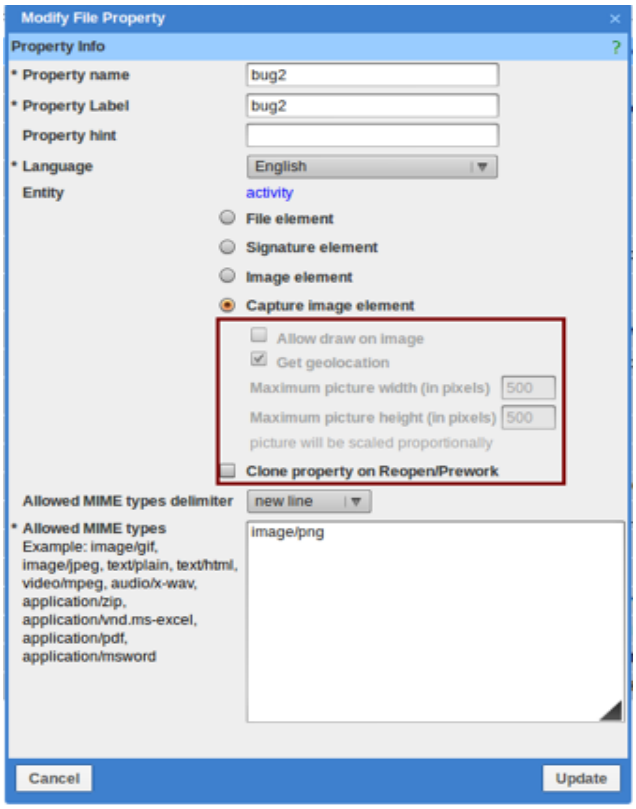


Figure 98: Inactive 'Capture image' settings

This has been fixed in 4.5.1 and now the capture image property's settings are enabled.

3.2.8 Add/Edit Work Skills/Work Skill Conditions/Work Skill Groups/Capacity Categories Windows Fixed

In the previous versions the 'Add/Edit Work Skills/Work Skill Conditions/Work Skill Groups/Capacity Categories' windows looked incorrect after resizing and subsequent modification of a resource's work skills in the 'Technician/Bucket info' screen. The window would show incomplete data and its layout would be corrupted (Figure 99).

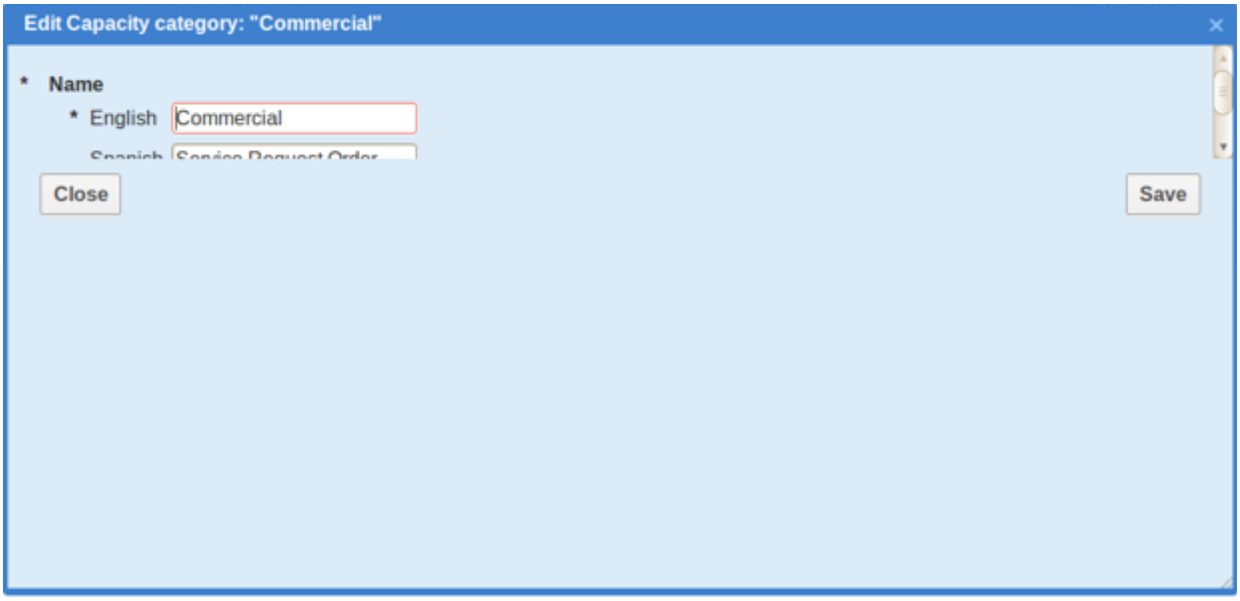


Figure 99: Corrupted look of 'Edit Capacity category' window

In version 4.5.1 the necessary improvements have been made, and the windows now look correct with all data displayed.

3.3 Activity Features

3.3.1 Editing Options for Completed and/or Past Activities Revised

In the previous version, Activity Details screen had a "Provider Preferences" tab with controls for editing preferences for completed and/or past activities. This is an unacceptable behavior, since these controls should be in read-only mode when an activity is not pending or is in the past.

This has been fixed in 4.5.1 and therefore, it is now only possible to edit Resource preferences only for activities with the 'pending' status and not completed and/or past activities.

3.3.2 Warning for Maximal Time Interval Constraint Violation has been Added

In the previous version a warning did not appear at an attempt of linking a pending activity to another activity with 'finish-to-start' or 'start-to-start' links and violating the 'Maximal time interval' constraint. The link was created anyway, even if the interval between activities was exceeded considerably.

This has been fixed in 4.5.1 and now a confirmation screen with the "The maximal time interval constraint is violated" warning appears in applicable cases.

3.3.3 Effective Work Skill Recalculation Improved

The work skills shared in a teamwork were recalculated incorrectly after the sharing level was changed for the respective work skill. The resources' hints would still show the members' effective work skills which had been applicable before the sharing level change. The effective work skills would only be updated after relogin or activity move to/from the resource or after some time when no actions were made.

This issue has been resolved by adding the time limit for hint content saving. Now the resource hint data is refreshed every 10 seconds, and the hints display the actual information.

3.3.4 Version Number Check Between PHP Clients and Application Server

As of version 4.5.1 the major, minor and revision protocol numbers are checked between the PHP client and the Application Server. In case of a mismatch a warning is written to the log file.

3.3.5 Permission-Based Action Link Conditions

As of version 4.5.1 the following action link conditions exist to be used for the action links in the Mobility Application:

- has_read_permission
- has_read_write_permission

These conditions affect the visibility of action links in the Mobility Application.

3.3.6 'Add Link' Dialog Window Improved

In version 4.5.1 the 'Add Link' dialog window where links between activities can be defined has been changed to increase its usability. If any minimum and/or maximum intervals between activities have been defined in the 'Link Templates' screen, such intervals are now shown in the 'Add link' window in one line (Figure 100).

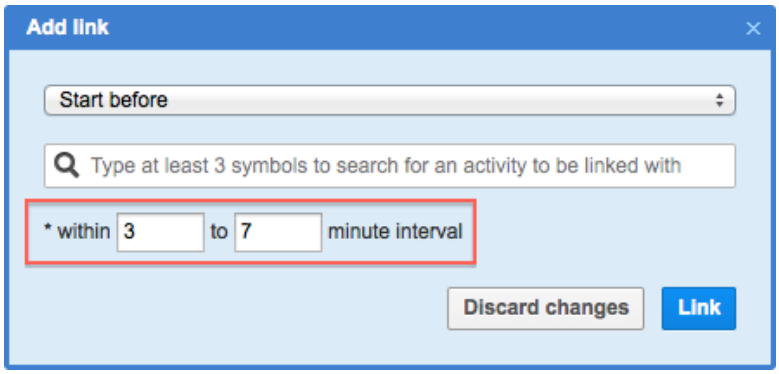


Figure 100: Minimal and maximal intervals shown in one line

Also, activity search now shows the list of matching activities as the user types the search key. The search key occurrence is highlighted in the search results list in bold type (Figure 101).

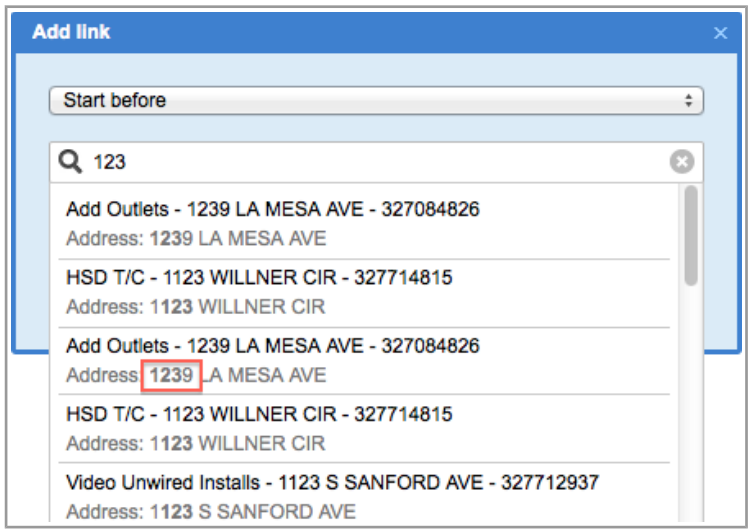


Figure 101: Search results list with search key occurrences highlighted

3.4 Activity Views

3.4.1 Start Activity Button is Available for Repeating Internal Activity on Activity Details Screen

Previously, when creating an internal repeating activity, the technician was not able to start an activity, for the lack of the Start Activity button on the activity details screen.

This has been fixed in 4.5.1 and now the button is available and the activity can be started respectively.

3.5 Company Settings

3.5.1 'Nearby Activities' Permissions Implemented

In order to provide the option of controlling users' access to the Nearby Activities functionality, the 'Search Nearby Activities' permissions have been added to the Permissions Tree. The permission has been implemented both for the Manage and Mobility Applications and can be set to 'Show' or 'Hidden' to enable or disable the user's access to the functionality, respectively.

3.5.2 API Profiles Sorting Improved

In the previous version at an attempt to sort the API profiles by anything else rather then default, an error message would pop up and no records would show up in the table.

This has been fixed in 4.5.1 and now the API are sorted in accordance with the command (Figure 102).

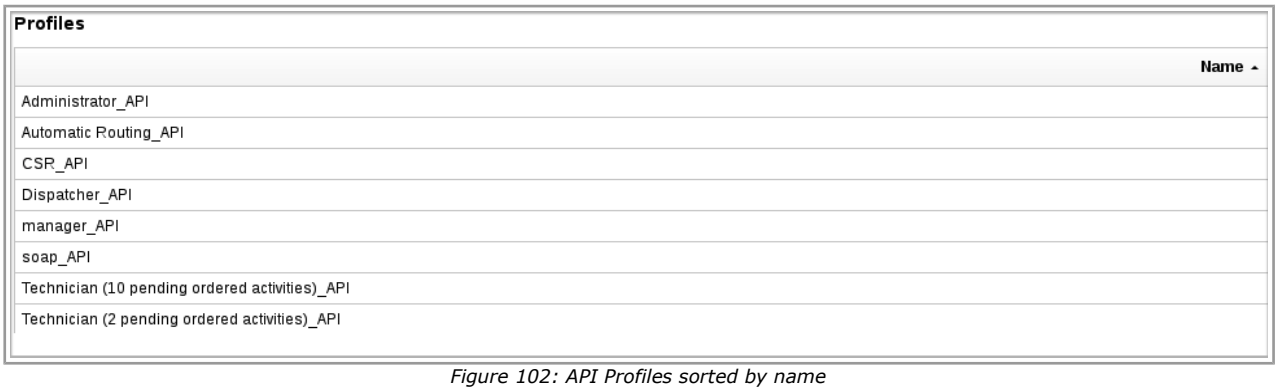


Figure 102: API Profiles sorted by name

3.5.3 Context Layout Permissions Improvement

Control layout permissions used to only be placed in Display section. However, since they also control the layouts for API profiles and API Configuration must have personal permissions for context layout, this resulted a conflict.

This has been fixed and as of 4.5.1 control layout permissions have also been added for API profiles: Context layout list and Context layout structure (Figure 103).

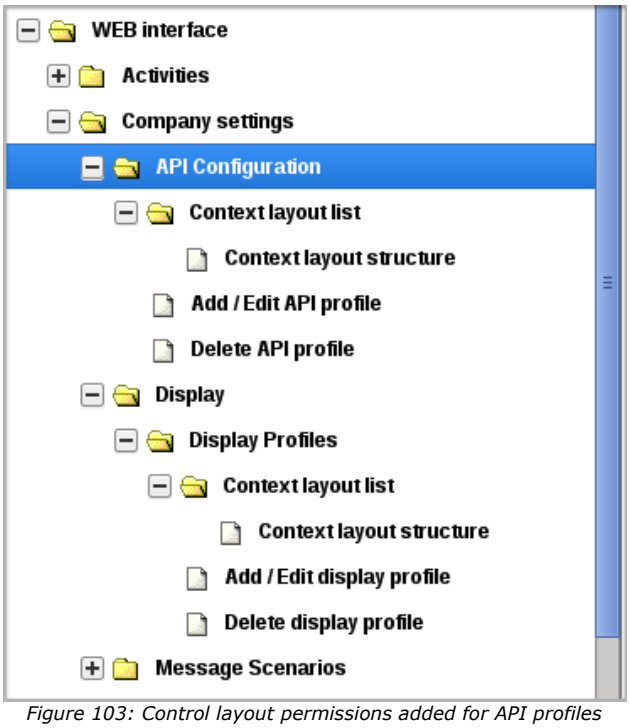


Figure 103: Control layout permissions added for API profiles

3.5.4 Plugin Action Link Shows Properly in Display Layouts Section

In the previous version, the plugin action link did not display in Display layouts section with "Main Menu Items" checkbox activated, although it should.

3.6 Map Issues

3.6.1 Activity Hint Now Works Correctly in Map View

Due to an internal Google API change, no hints could be displayed from the activity markers in the Map View. The activity markers could not be dragged and dropped.

Now, when an activity marker is clicked, it can be dragged and dropped, its hint is displayed and the activity actions can be selected via the corresponding links in the hint.

3.6.2 Resource Trace Displayed with Filters Applied

In the previous versions, whenever any filter was applied on the Map View, the resource trace would disappear. The reason for such behavior was that when a filter is applied, the View no longer displays the whole route. However, the trace should always be shown, even when the route is not visible.

In ETAdirect version 4.5.1 when any filter is used on the Map View, the route is hidden while the trace remains visible.

3.7 Displays

3.7.1 Identifier Customization Section Introduced

As of ETAdirect version 4.5.1 the 'Context layout structure' screen has a special text customization section to be used for changing the font, color and size of activity, request and inventory identifiers. Now,

once there is "text" in layout structure of identifier, font style, size and color can be edited (Figure 104).

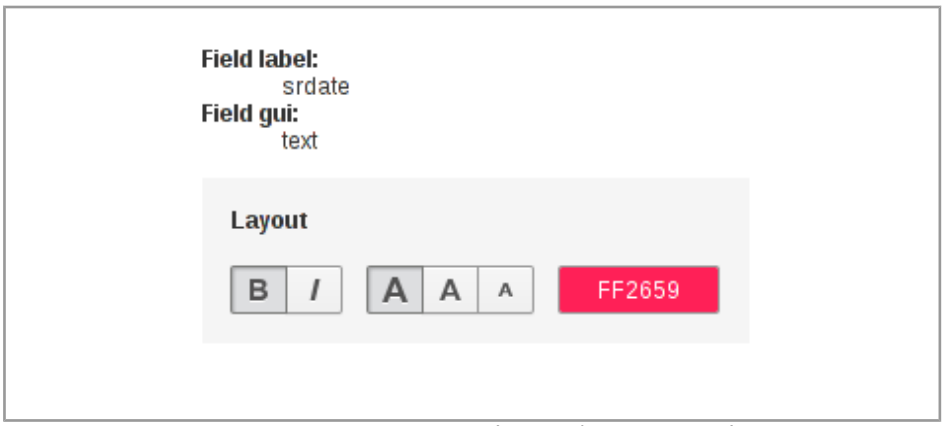


Figure 104: Customization section in 'Context layout structure' screen

3.7.2 Customized Inventory and Request Identifiers

With the introduction of the customization option for the activity, inventory and request identifiers the inventory items and service requests are displayed in the respective lists according to their custom settings (Figure 105-106).

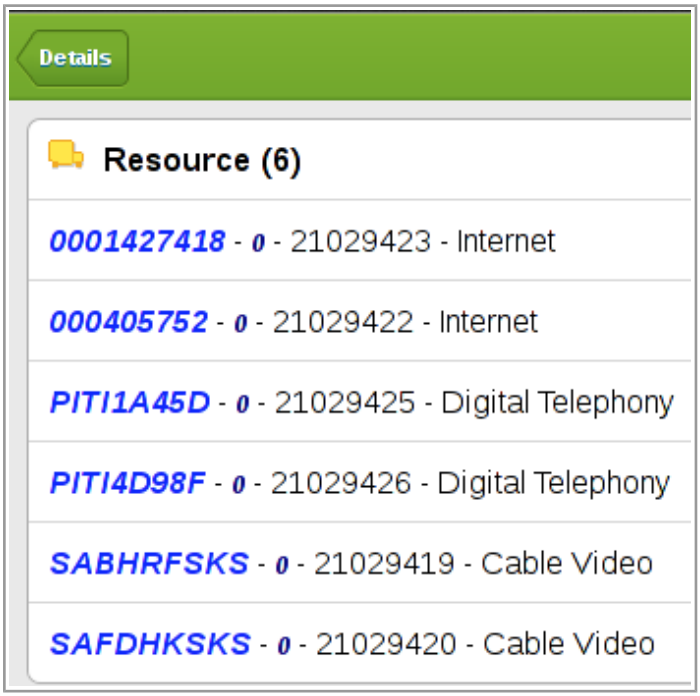


Figure 105: Customized inventory identifiers

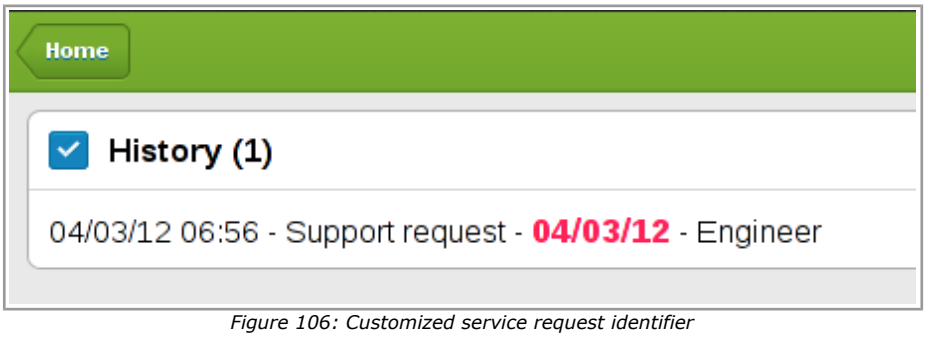


Figure 106: Customized service request identifier

3.7.3 Interfaces Renamed in Context Layout List Screen

In order to observe the common terminology accepted in ETAdirect, the interfaces have been renamed from 'WEB' and 'Mobile' (Figure 107) to 'Manage' and 'Mobility' (Figure 108), respectively, in the 'Interface' drop-down list in the 'Context layout list' screen.

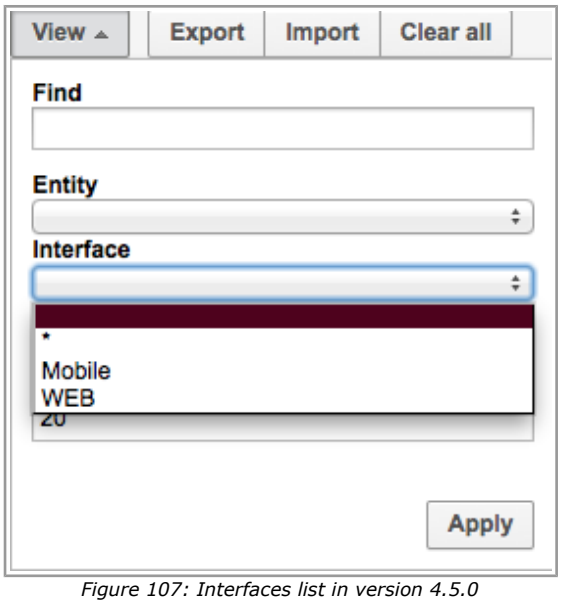


Figure 107: Interfaces list in version 4.5.0

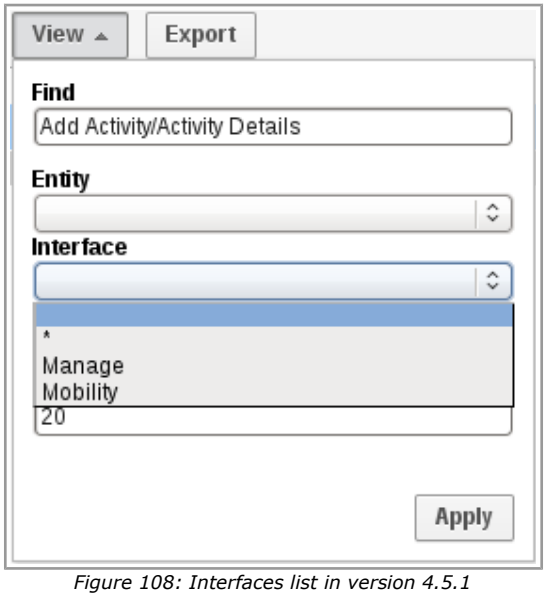


Figure 108: Interfaces list in version 4.5.1

3.7.4 Property Visibility Modification in Context Layout Structure No Longer Produces Errors

Any actions with visibility of any property, text, marker, group or action in the 'Context layout structure' screen (addition, deletion, modification) resulted in unexpected errors in the error log.

The issue has been resolved and visibility modifications no longer produce errors.

3.7.5 'in'/'not in' Conditions of Linked Properties Work Correctly

The 'in'/'not in' conditions set for linked properties with 'aworktype' as the main property actually produced visibilities opposite to those defined by the conditions.

The 'aworktype' value matching procedure has been adjusted, so that now the conditions produce the correct visibilities.

3.7.6 Visibility Tables Removed from 'Visible List Columns' Context

In the previous version of ETAdirect the 'Visible list columns' context layout structure screen offered a visibility table and an 'Add new visibility link' (Figure 109). New visibilities could be selected but were not saved.

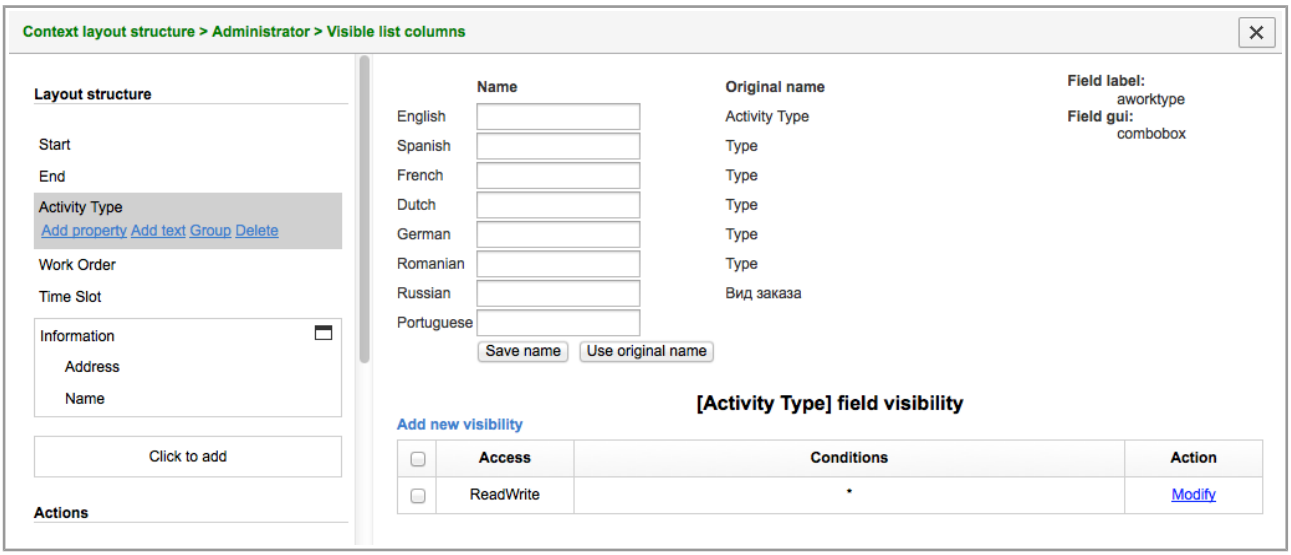


Figure 109: Context layout structure in version 4.5.0

However, by design not all contexts should have visibility tables, and 'Visible list columns' is one of them. Therefore, the visibility tables and the 'Add new visibility' link were removed from this context layout structure screen (Figure 110).

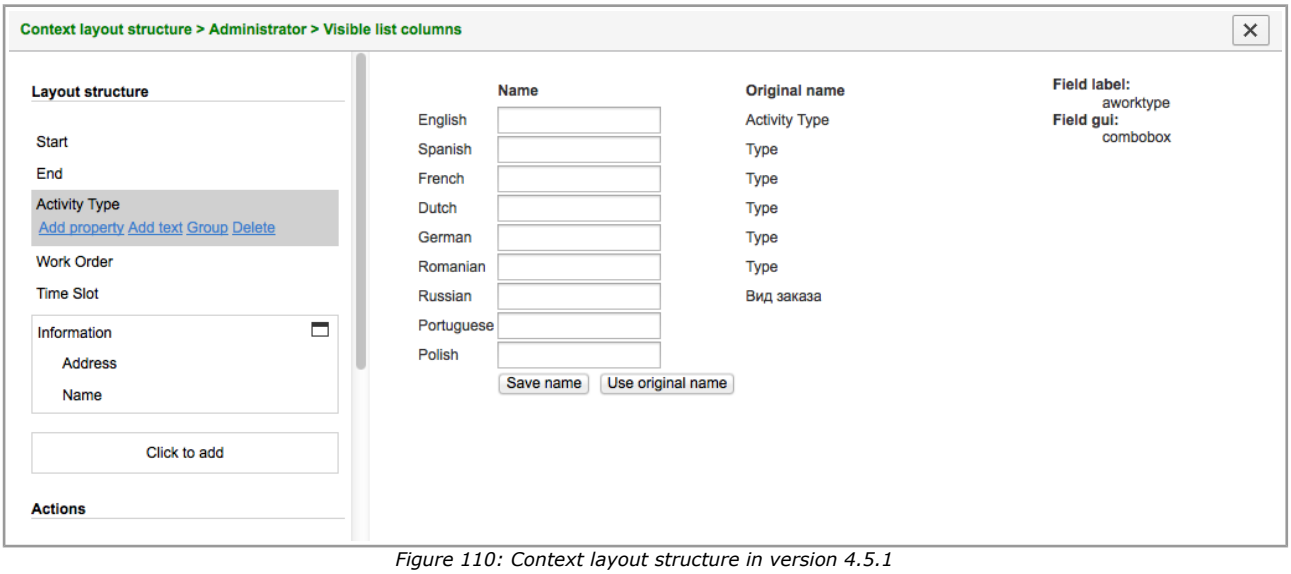


Figure 110: Context layout structure in version 4.5.1

3.7.7 Linked Properties for 'Cancel/Change Group of Activities' Context Improved

When linked properties were defined for the 'Cancel/Change group of activities' context, no values could be entered and saved for some of such properties in the 'Cancel/Change group of activities' window. The screen would refresh and the filled-in values would be cleared.

After the necessary improvements the linked properties functionality works correctly for the 'Cancel/Change group of activities' context.

3.7.8 Resource Photo Uploading Improved

Resource's photos could not be uploaded in the 'Resource info' screen and the attempts to upload a photo resulted in errors appearing in the log.

In version 4.5.1 the photo upload function has been improved – photos can be uploaded properly and no errors are written to the log.

3.7.9 Display Layouts Export/Import Supports Linked Properties

With the introduction of the Linked Properties functionality the display layouts export/import has had to be adjusted to include the new functionality. Now the export/import file contains the conditions of context layout item values and the value visibilities of the corresponding display layouts.

3.7.10 Main Menu Displayed Correctly after Import

When all contexts were cleared from a display profile (with the 'Clear all' button) and a new display profile was imported, the Main Menu would display question marks instead of the menu items (Figure 111).

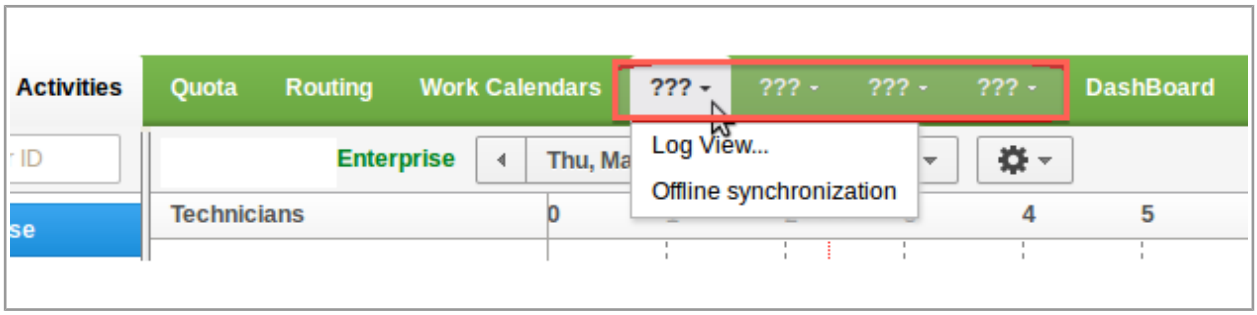


Figure 111: Question marks displayed instead of menu items

This was caused by new data not being loaded to the profile after import. This issue has been addressed and now the data is loaded and the profile structure is recalculated properly. The Main Menu items are displayed correctly after the display profile import.

3.7.11 Display Profile Exported and Imported Properly

In the previous version a display profile export to an xml file and a display profile import from an xml file caused unexpected errors to be written to the log.

The necessary changes have been made and display profiles can now be exported and imported without any errors.

3.7.12 Predefined Tabs Added to 'Add Activity/Activity Details' Context Layout

The 'Add activity/Activity details' screen has 6 predefined tabs which are also added to the 'Add activity/Activity details' context layout (Figure 112):

- Inventory
- Resource Preferences
- Required Inventory

- Messages
- History
- Links

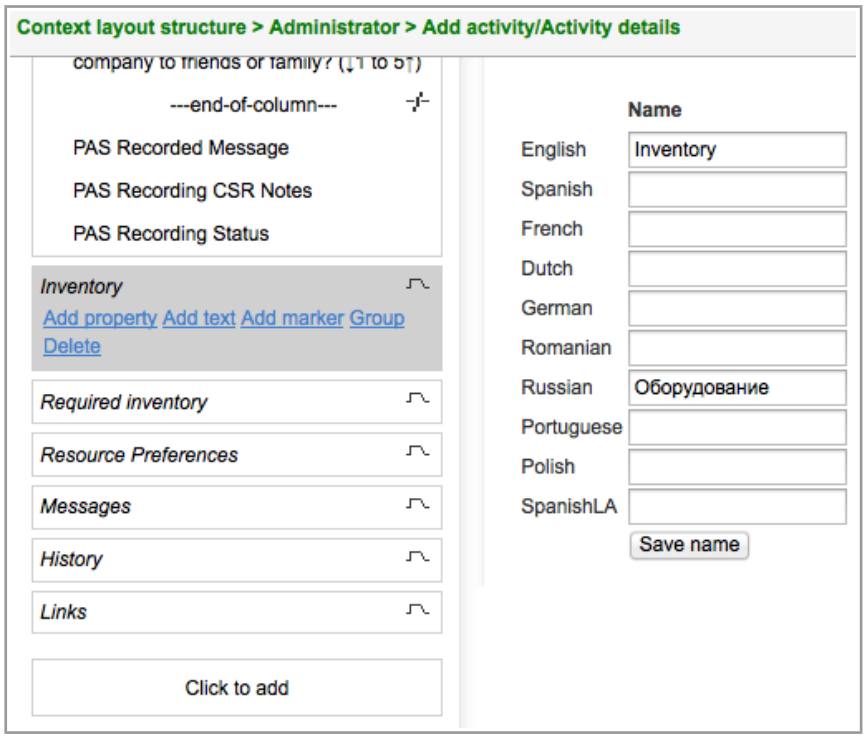


Figure 112: Predefined tabs

Now the position of these tabs can be configured in the 'Add Activity/Activity details' context layout. Also, any other context layout item can be added to one of these tabs during the context layout configuration. For this purpose, the 'Add to group' dialog window now has the 'Predefined tab' option where the predefined tab can be selected (Figure 113). The context layout item will be added to the selected predefined tab.

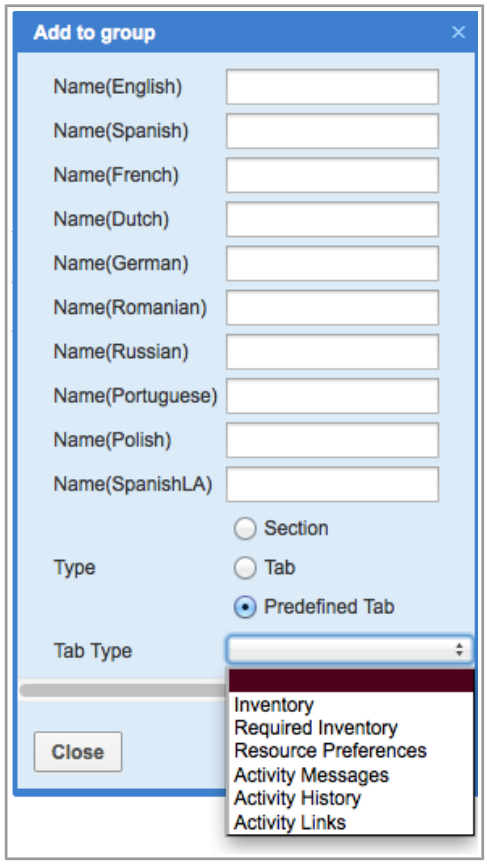


Figure 113: 'Predefined tab' option in 'Add to group' window

3.8 Inventory

3.8.1 Resource Tree No Longer Visible in 'Inventory Types' Screen

With the introduction of the 'Inventory Types' feature a new 'Inventory Types' screen has been implemented ('Company Settings' → 'Inventory Types'). In the previous version this screen also displayed the Resource Tree in the left part of the screen if 'Inventory Types' was opened after a resource was selected in the Tree (Figure 114).

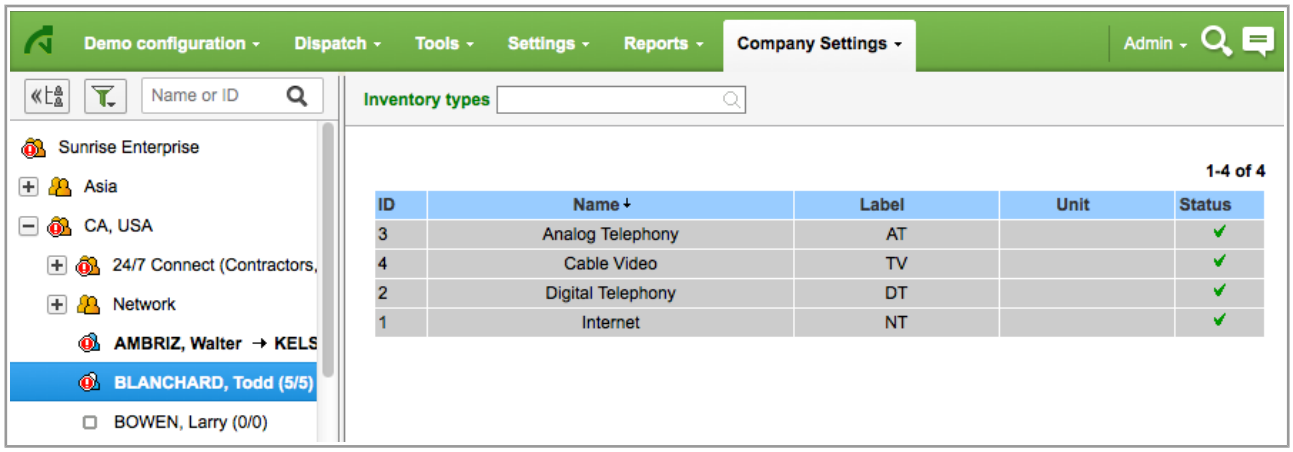


Figure 114: Resource Tree visible in 'Inventory Types' screen

This behavior was illogic, as Resource Tree is absolutely unrelated to the 'Inventory Types' screen. In version 4.5.1 the Resource Tree is always hidden from the 'Inventory Types' screen. The inventory type list occupies full screen.

3.8.2 Inventory Types Deletion/Activation/Deactivation Now Accompanied with Correct Messages

A deletion/activation/deactivation of one or more inventory types in the 'Inventory Types' screen produced a '• true' message which was unclear and uninformative (Figure 115).

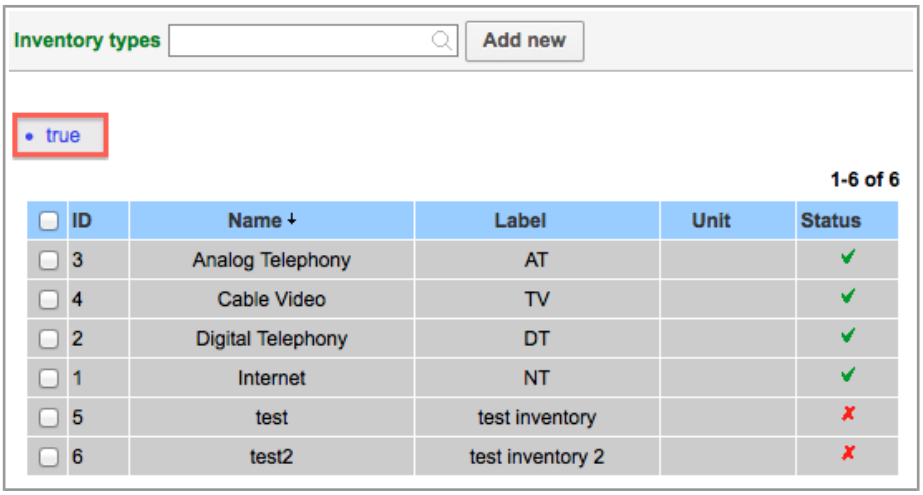


Figure 115: '• true' message in 'Inventory Types' screen

ETAdirect version 4.5.1 contains 3 new placeholders for inventory type deletion/activation/deactivation actions:

- Inventory types deletion successful
- Inventory types activation successful
- Inventory types deactivation successful

Now each group action in the 'Inventory Types' screen is accompanied with its own success message (Figure 116).

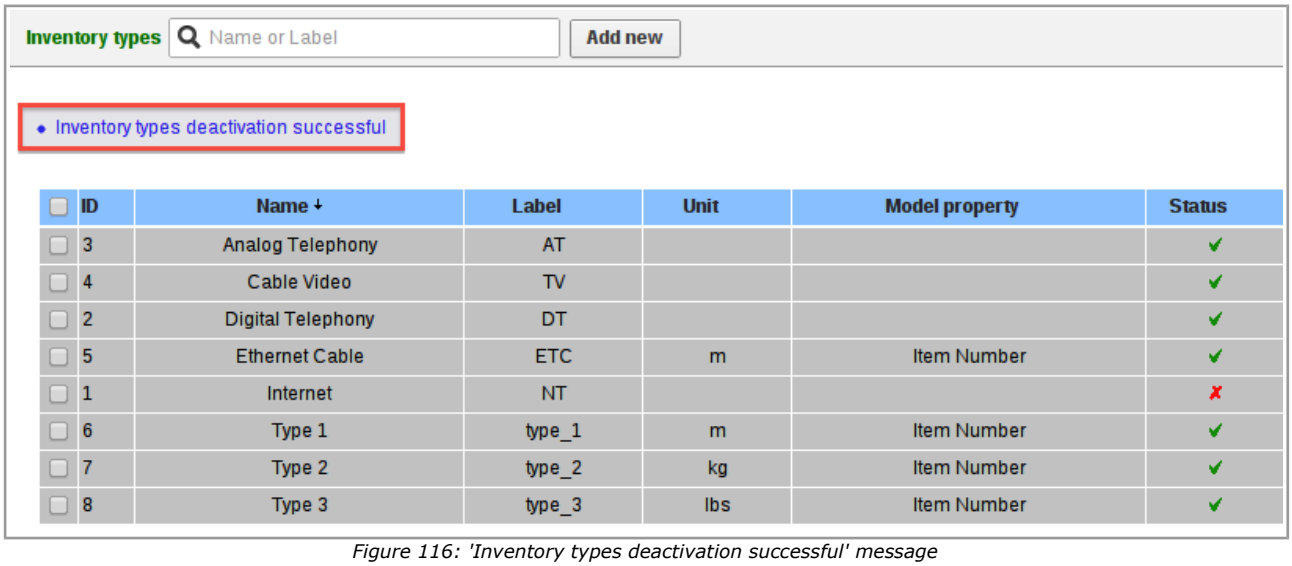


Figure 116: 'Inventory types deactivation successful' message

3.8.3 Alphabetic Sorting of 'Model Property' Field

The values in the 'Model property' field in the 'Add/Edit inventory type' window are now sorted alphabetically which increases the feature usability (Figure 118).

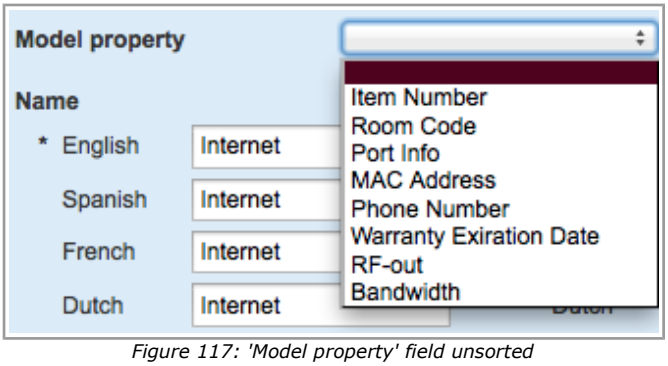


Figure 117: 'Model property' field unsorted

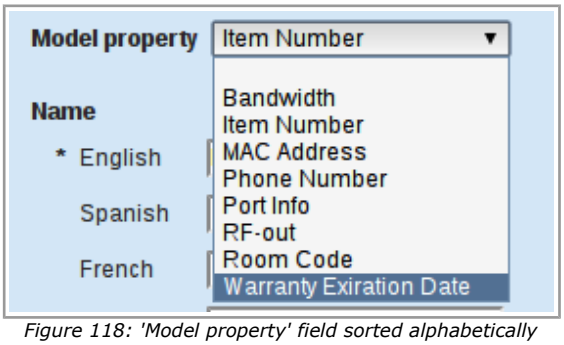


Figure 118: 'Model property' field sorted alphabetically

3.8.4 'Model Property' and 'NSI' Columns Added to Inventory Type List

As of version 4.5.1 the inventory type list has 'Model Property' and 'NSI' columns containing the corresponding values of the 'Model property' field and 'Non-serialized' checkbox (Figure 119).

ID	Name	Label	Unit	Model property	Status	NSI
3	Analog Telephony	AT			✓	
4	Cable Video	TV			✓	
2	Digital Telephony	DT			✓	
5	Ethernet Cable	ETC	m	Item Number	✓	✓
1	Internet	NT			✗	
6	Type 1	type_1	m	Item Number	✓	✓
7	Type 2	type_2	kg	Item Number	✓	✓
8	Type 3	type_3	lbs	Item Number	✓	✓

Figure 119: 'Model property' and 'NSI' columns in inventory type list

3.9 Routing GUI Improvements

3.9.1 "Filters" Section has been Removed from Routing Execution Log and Comparing Dialog

As of version 4.5.4, the "Filters" section is no longer present in the Execution log and Comparing Dialog, since it has not been filled out since version 4.2.8.

3.9.2 Time Limit for Routing Plan has been Enhanced

As of version 4.5.4 the "Time Limit" parameter of the Routing Plan contains both seconds and minutes, as opposed to just minutes. Previously, the minimal routing run duration was about a minute, it was, however, discovered that there are many cases where lower limit is required, hence the option with the seconds was added.

3.9.3 Internet Explorer – Routing Filters Improved

The previous versions of ETAdirect, when used in the Internet Explorer browser, had Routing filters behaving incorrectly – the system allowed selecting the same filter and activity type more than once and creating such filters in the routing plan (Figure 120). The filters were not applied, though.

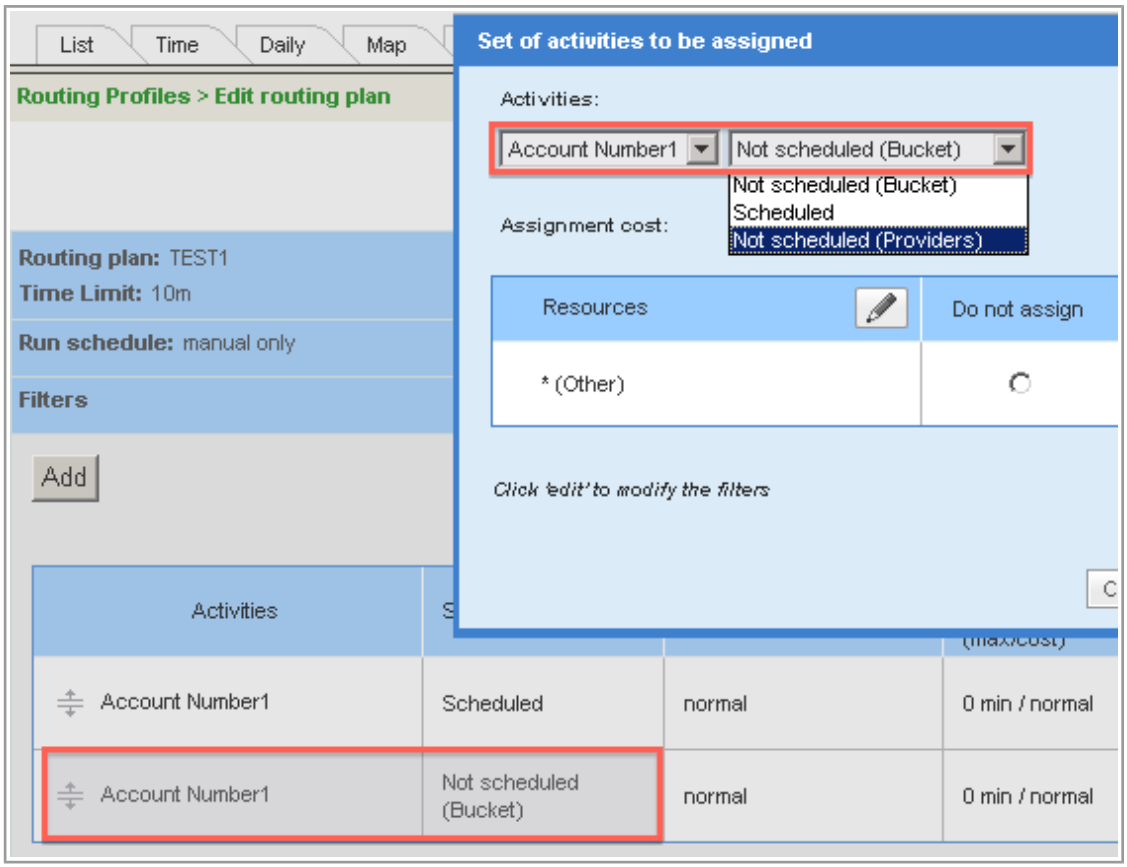


Figure 120: Routing filter selected twice

This issue has been resolved in version 4.5.1, where the earlier created filters are no longer shown in the list of available filters which is the correct system behavior.

3.10 SmartCollaboration

3.10.1 Community Window Fixed in Mobility Application

In the previous version no messages received via SmartCollaboration were displayed in the Mobility Application. When the user tried to refresh the page or relogin to the Mobility Application, the SmartCollaboration functionality became inaccessible – the main Community window was corrupted and allowed no actions at all (Figure 121).

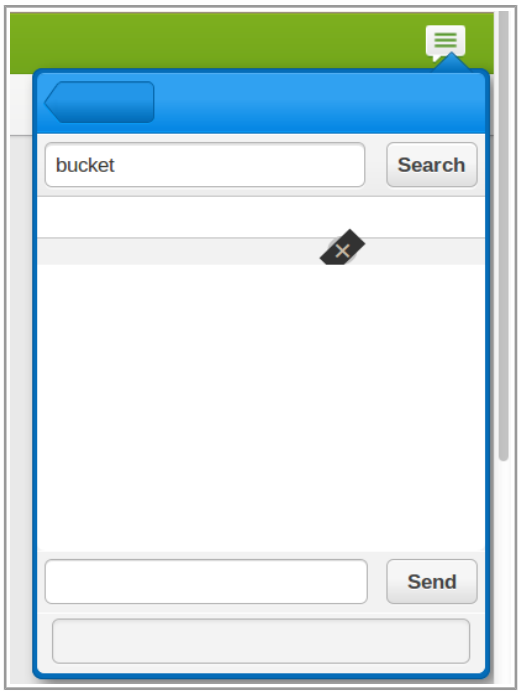


Figure 121: Unusable Community window

This issue has been addressed in ETAdirect version 4.5.1 where SmartCollaboration works properly.

3.10.2 SmartCollaboration Behavior in Manage Application Improved

The SmartCollaboration functionality was behaving unusually in the Manage Application – the user was unable to open the list of helpdesk operators in a chat because the 'Show' link produced no action, the messages and the list of chat participants were displayed incorrectly (Figure 122).

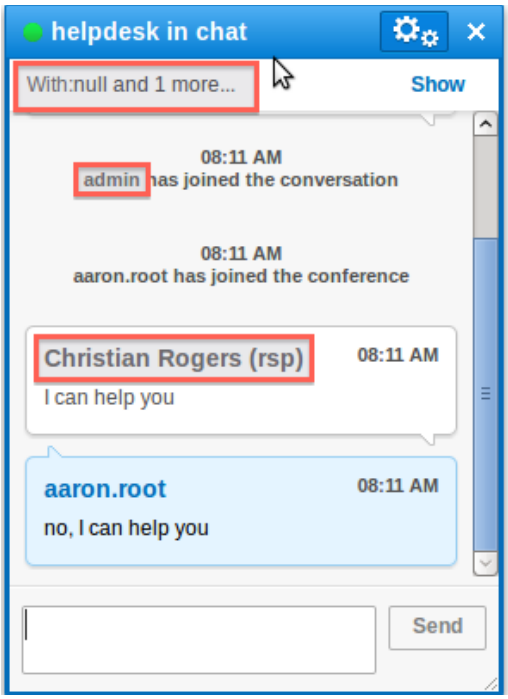


Figure 122: Incorrect data displayed in Community window

The issues with the SmartCollaboration functionality found in the previous versions have been addressed. Now the helpdesk chats can be used in a proper manner.

3.11 API Configuration

3.11.1 'Delete User' Action Accompanied with Confirmation Message

The previous version of ETAdirect processed an API user deletion by a user having access both to the Display profiles and API configuration screen without any confirmation messages.
In this version the user has to confirm deletion in a confirmation window of the standard ETAdirect design (Figure 123).

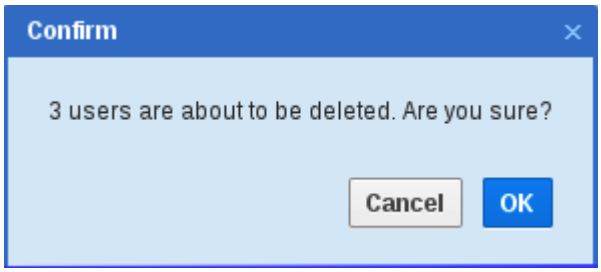


Figure 123: 'Delete user' confirmation window

3.12 Public API

3.12.1 Error Log Messages for SOAP Faults Now More Detailed

In the new version of ETAdirect the SOAP Faults returned by the Capacity API are logged with detailed error messages containing the reason of the SOAP request failure.

3.13 Mobility Application

3.13.1 'Capture Image' Function Improved

If a user cancelled image uploading after taking a photo (or choosing one) in the 'Activity details' screen, this caused the system to hang which could only be cleared by relogin.
The 'Capture image' function has been improved and the system now responds correctly to the 'Cancel' button.

3.13.2 'Dismiss' Button in 'Change Password' Screen No Longer Causes Logout

In the previous versions clicking the 'Dismiss' button in the 'Options' → 'Change password' screen logged the user out of the application.
In version 4.5.1 the 'Dismiss' button returns the user to the previously opened screen which is its normal behavior.

3.13.3 Resource's Calendar Shows Correct Date

In certain date ranges, around the Daylight Saving Time switch, the resource's calendar in the Mobility Application showed the date preceding the selected date instead of the selected one.
This issue was caused by the incorrect influence of the resource's time zone on the calendar date. This issue has been fixed and now the dates in the Calendar are shown correctly.

3.13.4 Markers in Nearby Activities View Changed to Standard Map Markers

As of version 4.5.1 the Map in the Nearby Activities screen has the same activity markers as are used in other map views in ETAdirect (Figure 125). This gives the product a more consistent and streamlined look.

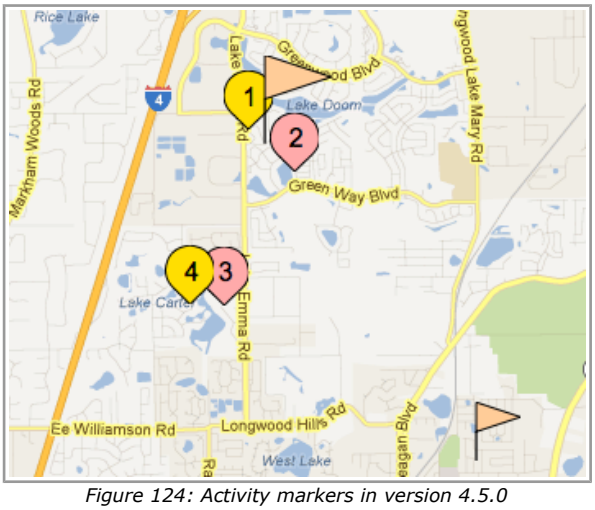


Figure 124: Activity markers in version 4.5.0

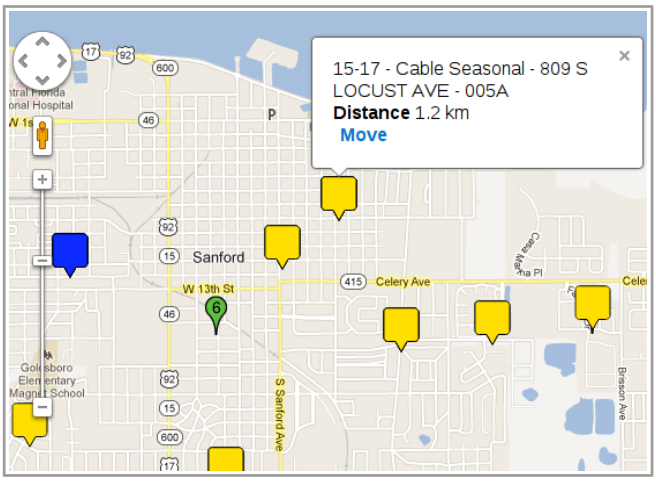


Figure 125: Activity markers in version 4.5.1

3.13.5 Photos Can No Longer Be Added to Properties with MIME Containing No Image Types

The previous versions of ETAdirect allowed adding photos to 'Capture image' properties in which MIME contained no image types while this should not be possible.

In version 4.5.1 the uploaded files are filtered according to the defined MIME types, and the system responds with a warning message to any invalid uploads.

3.13.6 Mobility Application Remains Usable in Offline Mode

In the previous versions the user working offline in the Mobility Application was unable to continue working after refreshing the page or closing and reopening the browser window. The browser responded with a native message "You are offline, page unavailable" or a similar message to that effect, while the user should have been able to continue using the Mobility Application in the offline mode.

This issue has been resolved in version 4.5.1. As of this version the Mobility Application functionality in the offline mode remains available after page refresh or browser window reopening.

3.14 Export/Import

3.14.1 Menu Items, Properties and Action Links No Longer Duplicated after Display Profile Import

If the Display profile was imported twice with the structure change and recalculation between the imports and the initial file used for the second import, sometimes the Main Menu items, Properties and Action Links were duplicated (Figure 126-127).

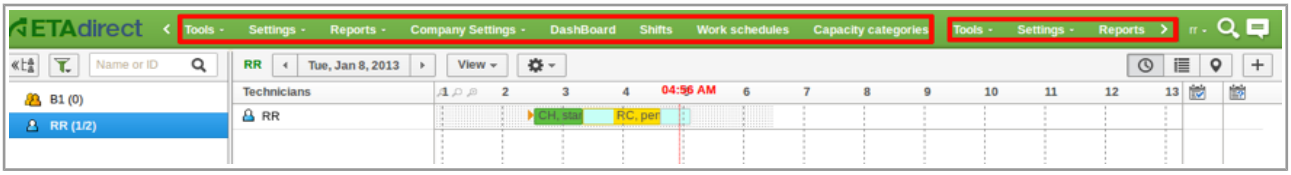


Figure 126: Main Menu duplicated

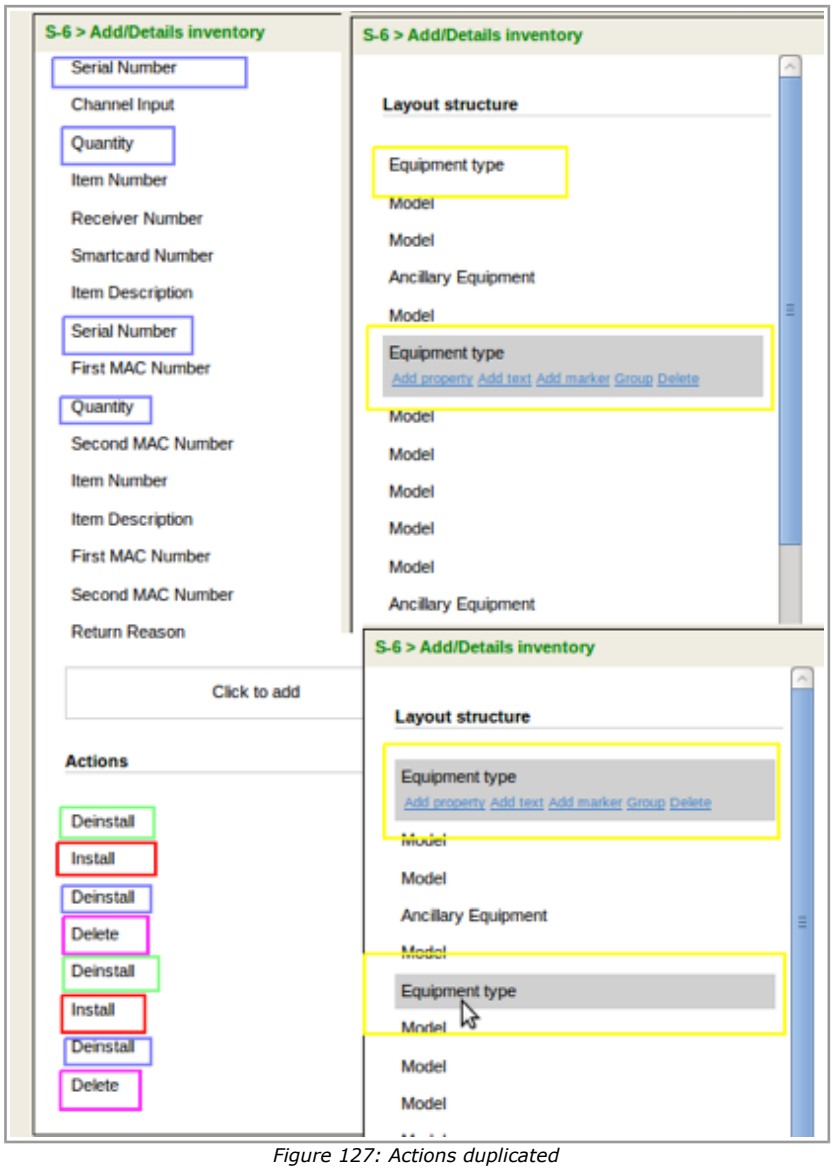


Figure 127: Actions duplicated

As of ETAdirect version 4.5.1 a new algorithm of data gathering and a new format have been implemented. Data is now imported correctly.

4 Changes and Improvements to Version 4.5.2

4.1 4.5.1 to 4.5.2 Changes Overview

- Resource Tree widget available in both activity panels
- Resize bars available for both activity panels
- Bottom activity panel duplicates top panel at opening
- 'View' window redesigned
- Activity move between panels by dragging and dropping
- Globally selected resource and date synchronized with activity panel selection
- Calendar in 'Add work zone' window improved
- 'Add/Modify activity link type' window adjusted to display 5-digit interval values
- Install/Deinstall windows support non-serialized inventory
- Search by one symbol supported
- Escape added to input/output values in Daily screen
- Activity type modification improved
- 'Activity Link Types' screen redesigned
- 'Add/Edit link template' window redesigned
- 'Monitored inventory fields' list added to 'Activity history' section of 'Display' screen
- Teamworks no longer created with 'Teamwork' activity type disabled
- Correct context used for 'Export' action in activities view
- Validation and import windows introduced for context layout export and import
- 'Work Zone Dictionary' filter improved
- Contexts now shown in lists of corresponding profiles
- Visibility conditions improved
- 'Print route (activity)' display context renamed
- Activity move in Map View improved
- Geocoding settings in 'Business Rules' checked
- Dynamic Routing settings cloned correctly
- Correct error message shown for 'Add Routing Profile' action
- Inactive routing plan search improved
- Recurrent routing schedule settings improved
- 'Add Routing Plan' functionality improved
- 'Delete' button shown completely in 'Filters' section
- 'Delete filter' confirmation window improved
- 'Routing profiles' screen loading improved
- Display mode applicable to each group of columns
- 'Submit' and 'Dismiss' buttons accessible in Tile Mode
- Calculation of number of columns
- 'Service request' screen improved

4.2 Manage Application

4.2.1 Activities Screen Redesign

4.2.1.1 Resource Tree Widget Available in Both Activity Panels

As of ETAdirect version 4.5.2 the top and bottom activity panels in the Activity View contain the entire Resource Tree offering independent actions in both panels. Now the widget containing the visibility button, filter button and search field is available both in the top and bottom activity panels. Therefore, both panels can be managed independently (Figure 128).

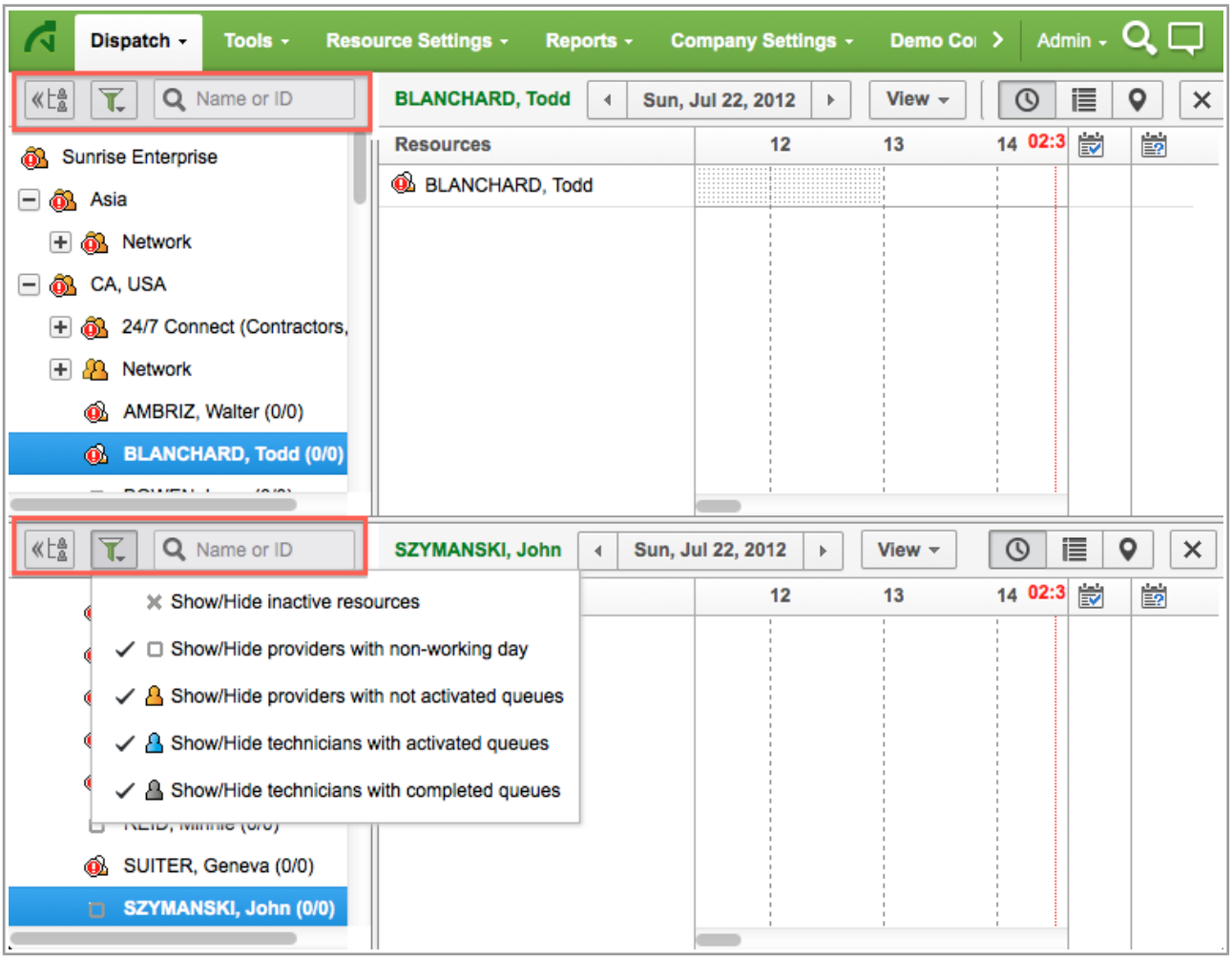


Figure 128: Resource Trees and their widgets in both activity panels

4.2.1.2 Resize Bars Available for Both Activity Panels

Two activity panels can now be independently resized by means of vertical and horizontal resize bars (Figure 129). The horizontal bar appears as soon as the bottom panel is opened. The vertical bar is visible when the Resource Tree is displayed. The horizontal bar allows changing the height of both activity panels together with their respective Resource Trees. The vertical bar allows changing the width of Resource Tree and, consequently, of its respective activity view in each activity panel independently. The content of each panel is resized accordingly to fit the container size as defined by the previously implemented mechanisms.

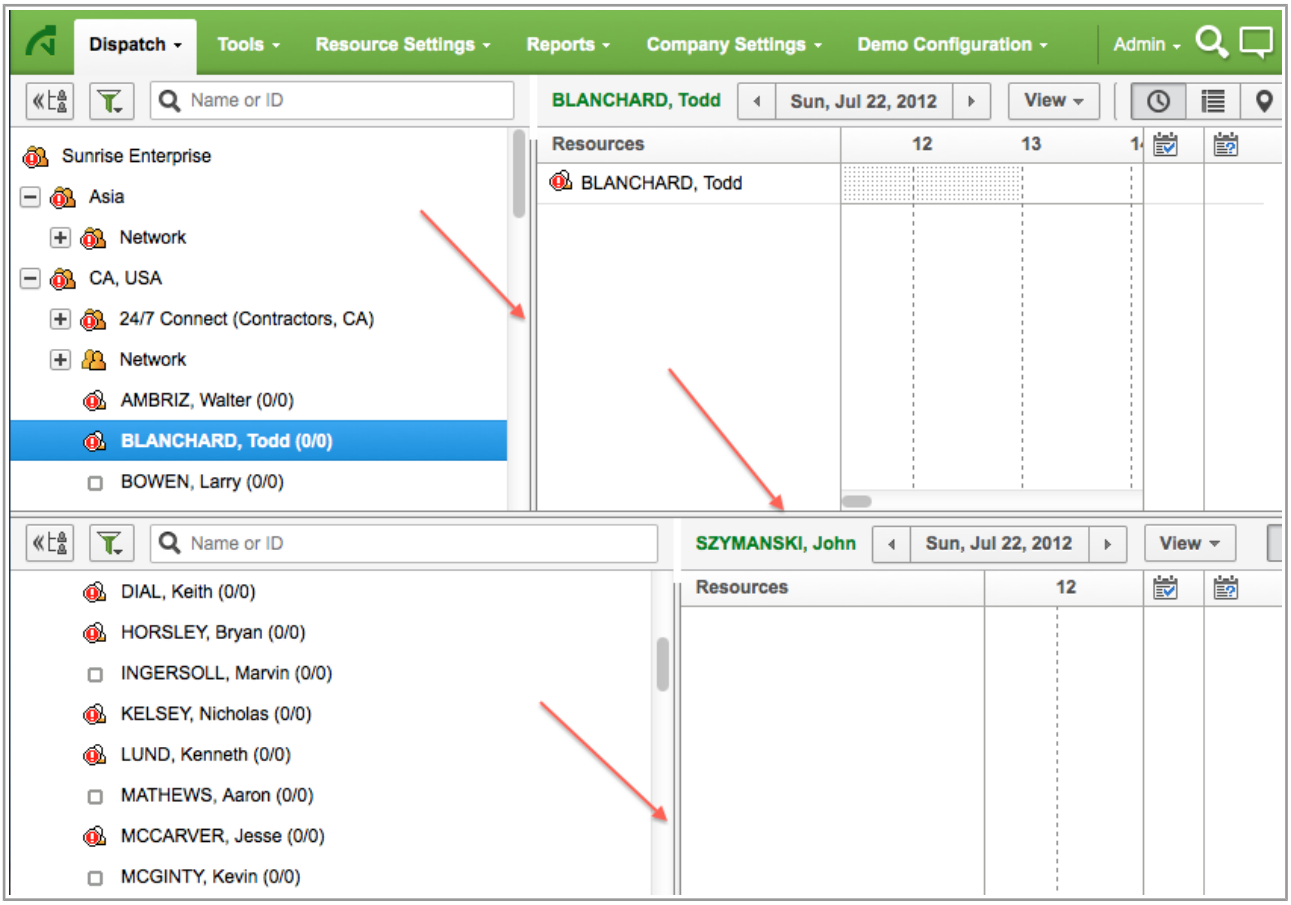


Figure 129: Resize bars in Activity Screen

4.2.1.3 Bottom Activity Panel Duplicates Top Panel at Opening

When a second activity panel is opened, it copies the top panel in respect of the selected date, resource, view type and the common filter data. However, the Resource Tree search, when applied to the top panel, is cleared for the bottom panel. The bottom panel will display the resource found through the search function, though (Figure 130).

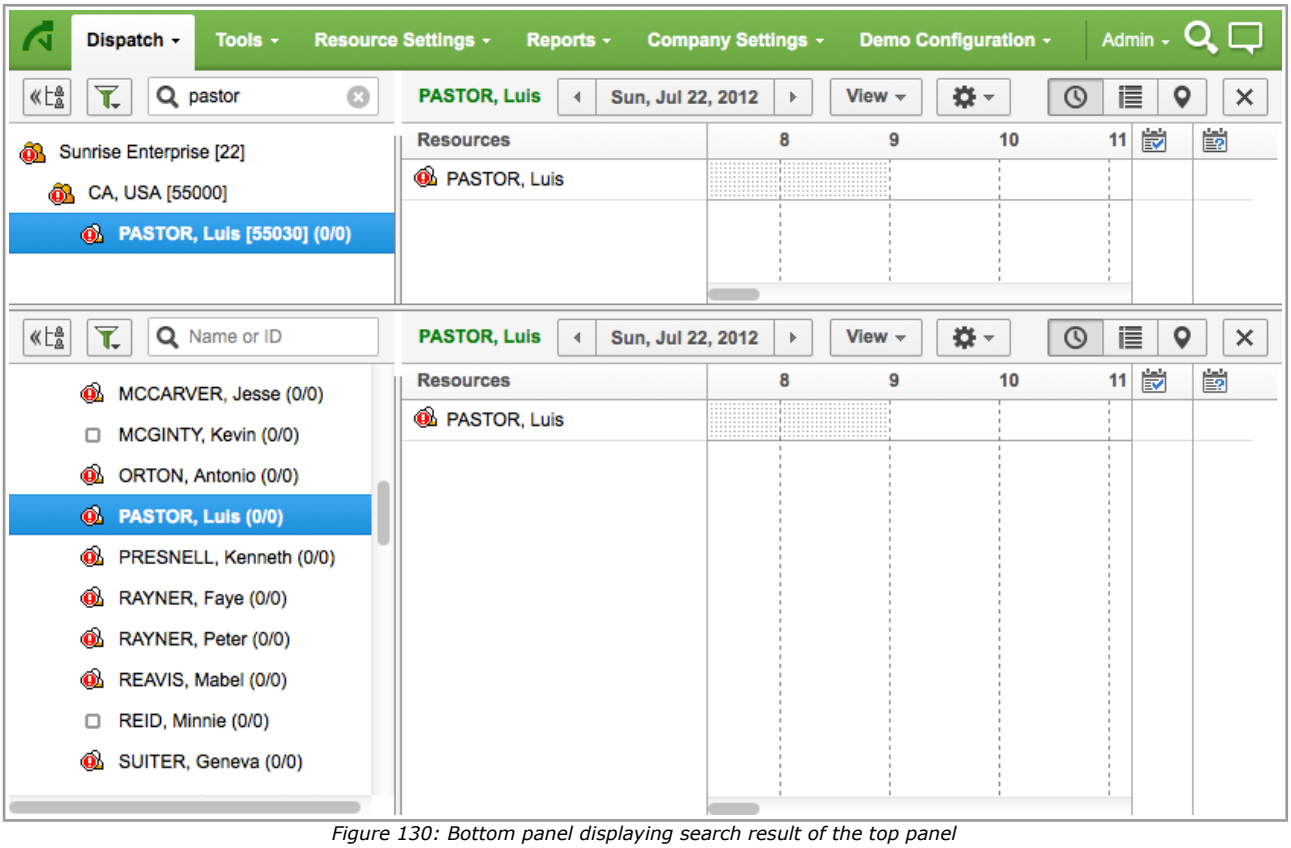


Figure 130: Bottom panel displaying search result of the top panel

4.2.1.4 'View' Window Redesigned

In version 4.5.2 the slider adjusting the activity bar size in the screen has been redesigned. The slider now has the 'Activity width' title and the 'Fit' button has been changed to the 'Fit' link increasing the overall usability of the widget (Figure 132).

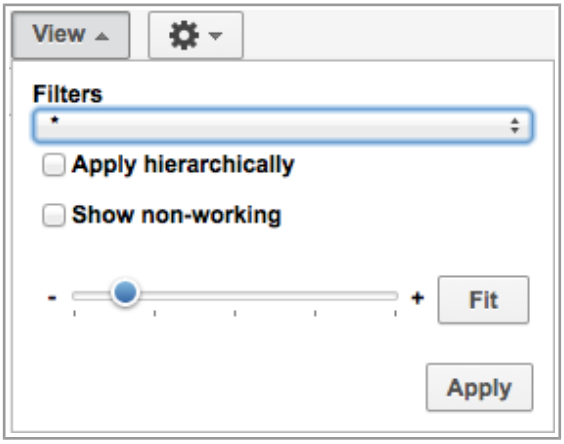


Figure 131: 'View' window in version 4.5.1

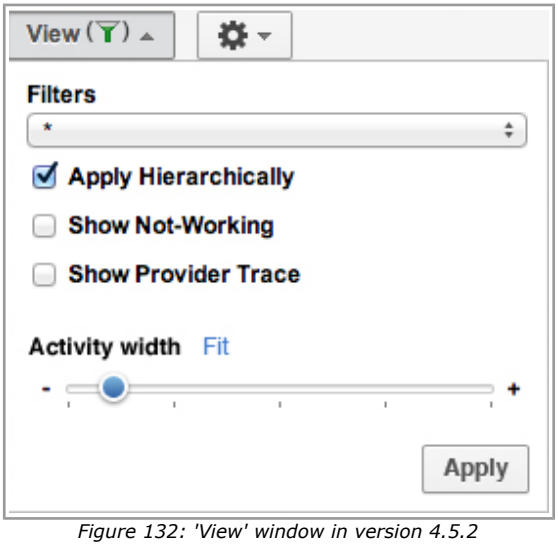


Figure 132: 'View' window in version 4.5.2

4.2.2 Activity Move between Panels by Dragging and Dropping

With the introduction of two Resource Trees in two activity panels the system now supports activity move between resources by dragging and dropping from one panel to the other (Figure 133). The standard move between resources within the same Resource Tree remains available, as well.

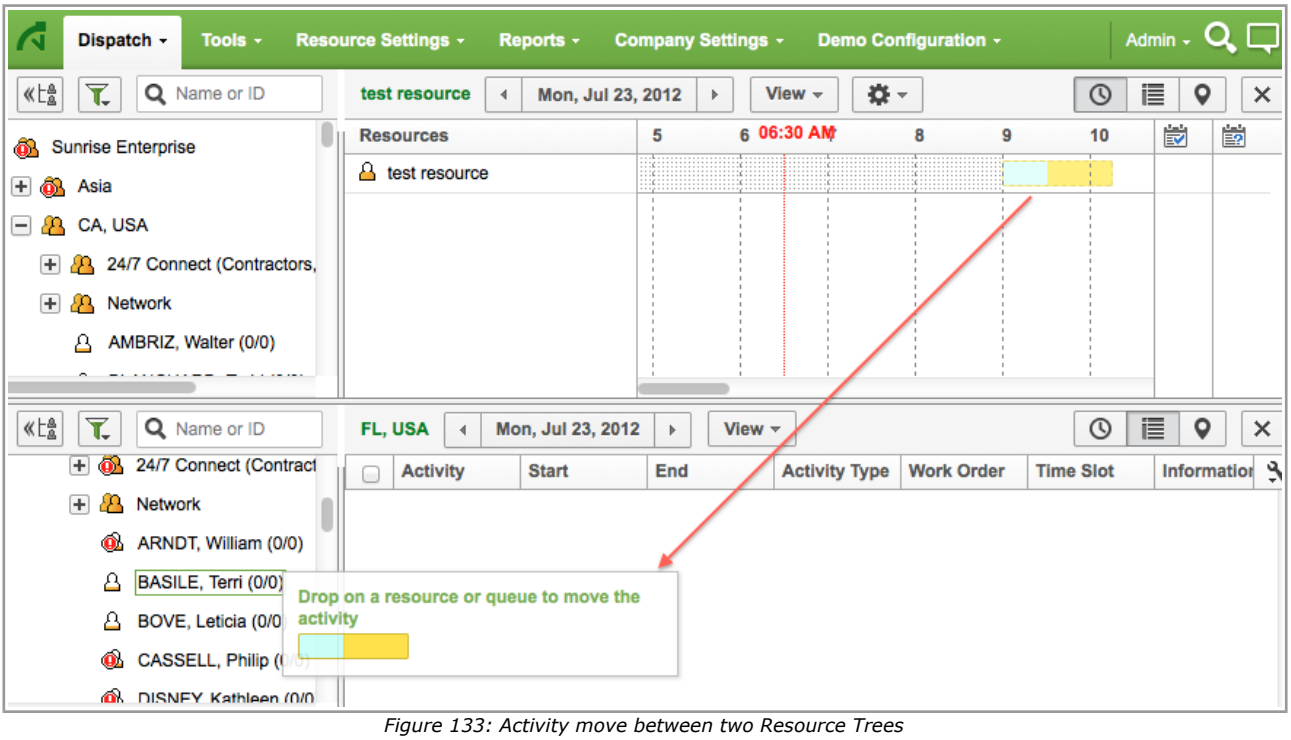


Figure 133: Activity move between two Resource Trees

4.2.3 Globally Selected Resource and Date Synchronized with Activity Panel Selection

As of version 4.5.2 the selection of resource in any Resource Tree updates the globally selected resource as well as the date selection in the calendar in either activity panel updates the globally selected date. The only exception is the non-scheduled view where the global selections are not updated.

4.2.4 Calendar in 'Add Work Zone' Window Improved

In the previous version the calendar in the 'Add work zone' window did not fit the window which made selection of future dates impossible (Figure 134). Clicking the scroll bar in the bottom only closed the calendar.

In version 4.5.2 the calendar has been changed to display one month only with scroll buttons for changing the calendar one month forward or backward (Figure 135).

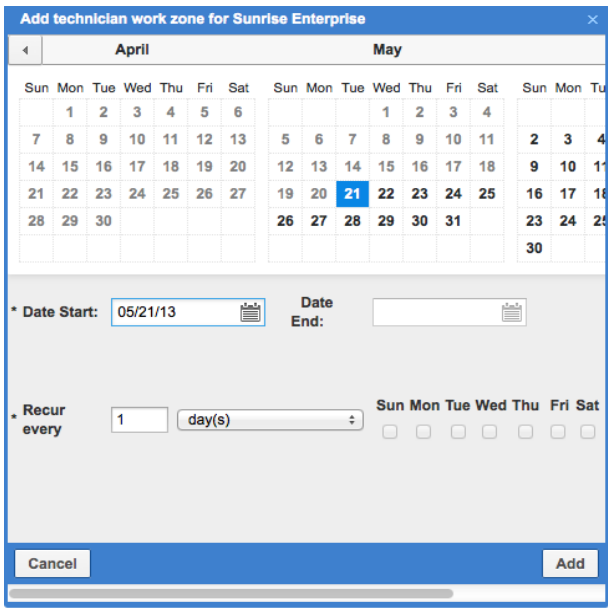


Figure 134: Calendar not fitting the window

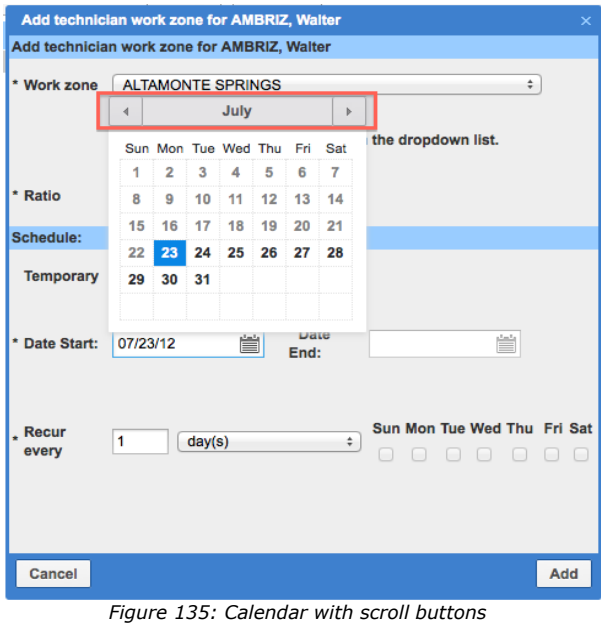


Figure 135: Calendar with scroll buttons

4.2.5 'Add/Modify Activity Link Type' Window Adjusted to Display 5-Digit Interval Values

The 'Add/Modify Activity Link Type' windows allow 30000 minutes as the maximum value in the 'Minimal interval' and 'Maximal interval' fields. However, in the previous versions any values higher than 9999 (any 5-digit values) were not displayed completely (Figure 136).

In version 4.5.2 the 'Minimal interval' and 'Maximal interval' fields have been increased to allow 5-digit values (Figure 137).

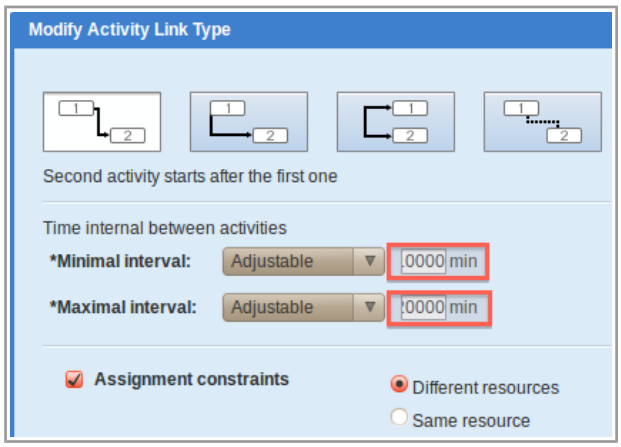


Figure 136: 5-digit values displayed incompletely

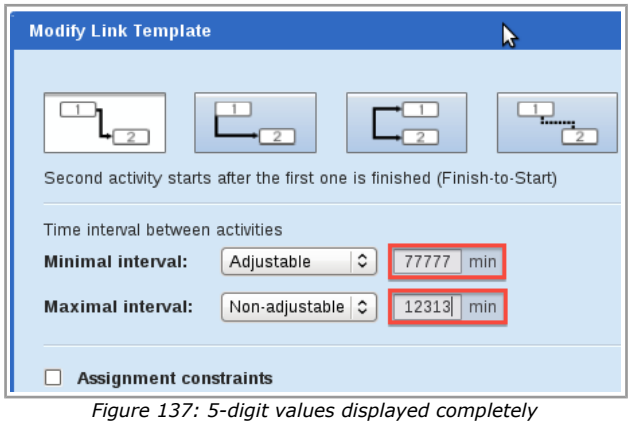


Figure 137: 5-digit values displayed completely

4.2.6 Install/Deinstall Windows Support Non-Serialized Inventory

With the introduction of non-serialized inventory the 'Install/Deinstall Inventory' windows have been changed to allow specifying the quantity of inventory to be installed/deinstalled (Figure 138). When non-serialized inventory is installed, the specified quantity is subtracted from the technician pool and added to the installed pool. When non-serialized inventory is deinstalled, the specified quantity is subtracted from the installed pool and added to the technician pool.

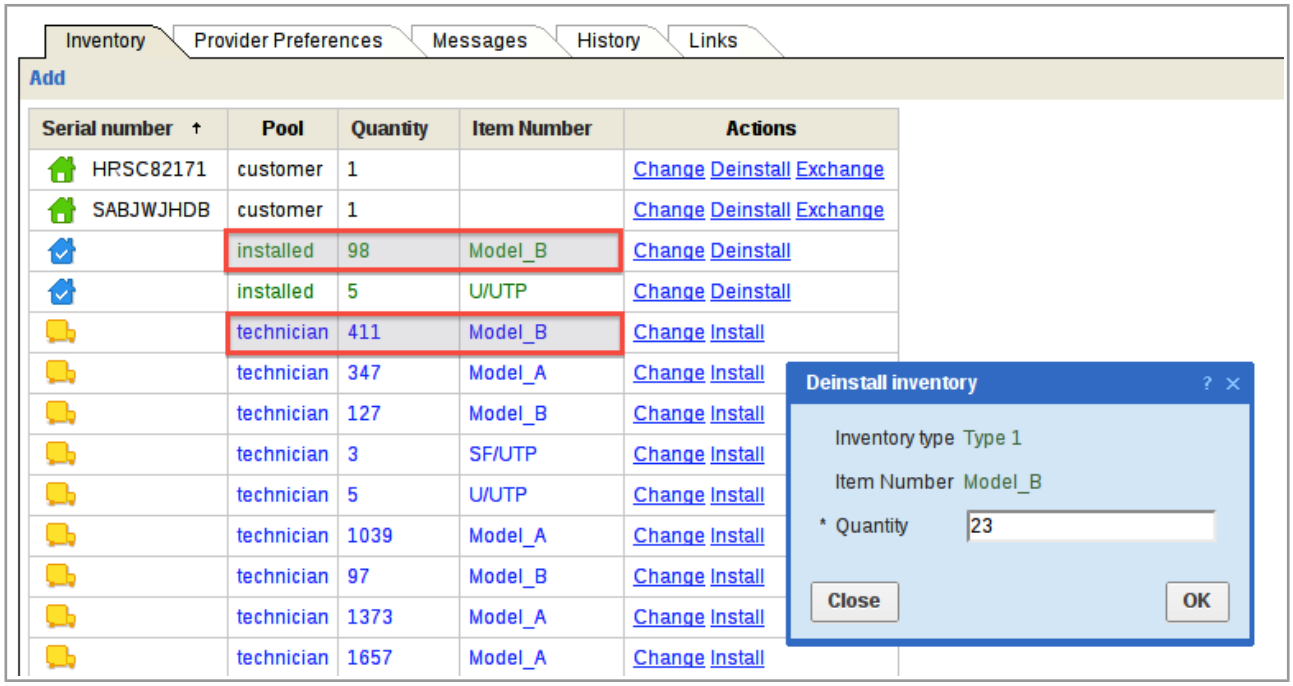


Figure 138: Non-serialized inventory deinstall window

4.2.7 Search by One Symbol Supported

As of ETAdirect version 4.5.2 the 'Capacity categories', 'Work Skills', 'Work Skill Groups' and 'Work Skill Conditions' screens support search by one symbol (Figure 139). Such option is useful in searching for labels or names containing unique symbols.

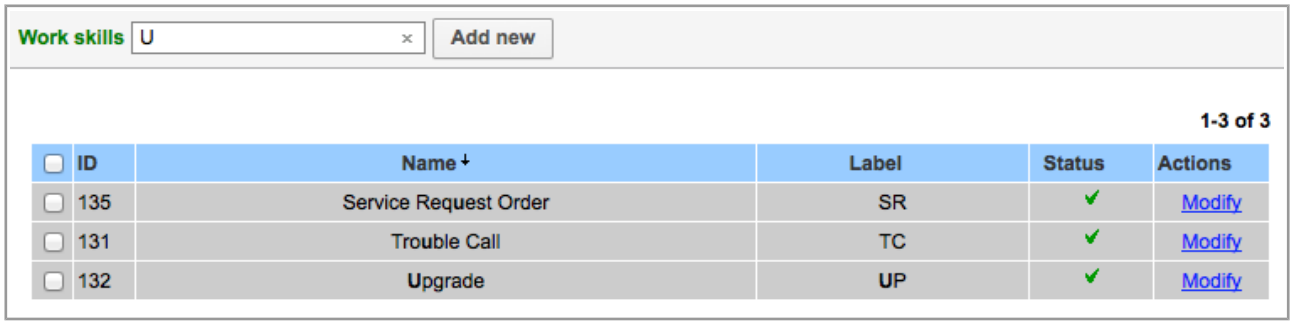


Figure 139: Search by one symbol

4.2.8 Escape Added to Input/Output Values in Daily Screen

As of version 4.5.2 escaping input and output data has been added to the Daily screen (shifts and non-working reasons). Now any symbols entered into the shift and non-working reason fields are displayed as entered both in the corresponding cells and in their hints, increasing the overall security of the system.

4.3 Activity Features

4.3.1 Activity Type Modification Improved

In the previous version the system responded incorrectly to modifications in the 'Activity Types' screen:

- activities recalculation after modification resulted in the 'Loading' message which remained

indefinitely in the screen. An error was written to the log file.

- activity activation/deactivation resulted in the 'Loading' message which remained indefinitely in the screen. An error was written to the log file.

These issues have been addressed in ETAdirect version 4.5.2. Activities can be recalculated, activated and deactivated properly.

4.3.2 'Activity Link Types' Screen Redesigned

In version 4.5.2 the transparency and usability of the Linked Activities functionality has been increased by redesigning the 'Activity Link Types' screen as follows (Figure 141):

- screen renamed to 'Link Templates'
- 'ID' column containing the activity link ID added
- 'Regular link name/Label' column renamed to 'Link for the second activity/Label' and moved to the second column
- 'Reverse link name/Label' column renamed to 'Link for the first activity/Label' and moved to the first column
- 'Constraints' column now contains icons displaying the link constraints in clear graphic form
- 'Constraints' column content capitalized

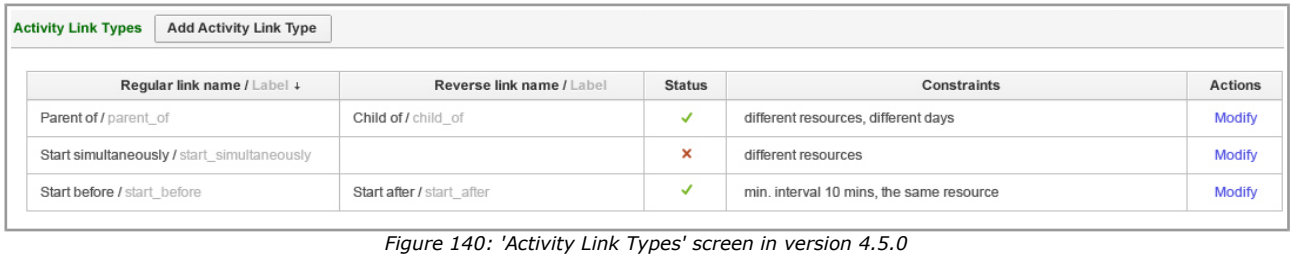


Figure 140: 'Activity Link Types' screen in version 4.5.0

Figure 141: 'Link Template' screen in version 4.5.2

4.3.3 'Add/Edit Link Template' Window Redesigned

In version 4.5.2 the usability of the Linked Activities functionality has been increased by redesigning the 'Add/Edit Link Template' window as follows (Figure 143):

- 'Regular link direction' section renamed to 'Link for the second activity' and moved to the right
- 'Reverse link direction' section renamed to 'Link for the first activity' and moved to the left
- 'Name' and 'Label' fields increased
- Translation fields made mandatory for all languages

- Translation fields for all languages made to be populated with the English translation at time of typing. The 'Label' field is populated with the same value in lower case with spaces replaced with underscore symbols "_"
- Auto-population disabled for all translation fields except English
- Not filled translation and label fields show hints suggesting the required values

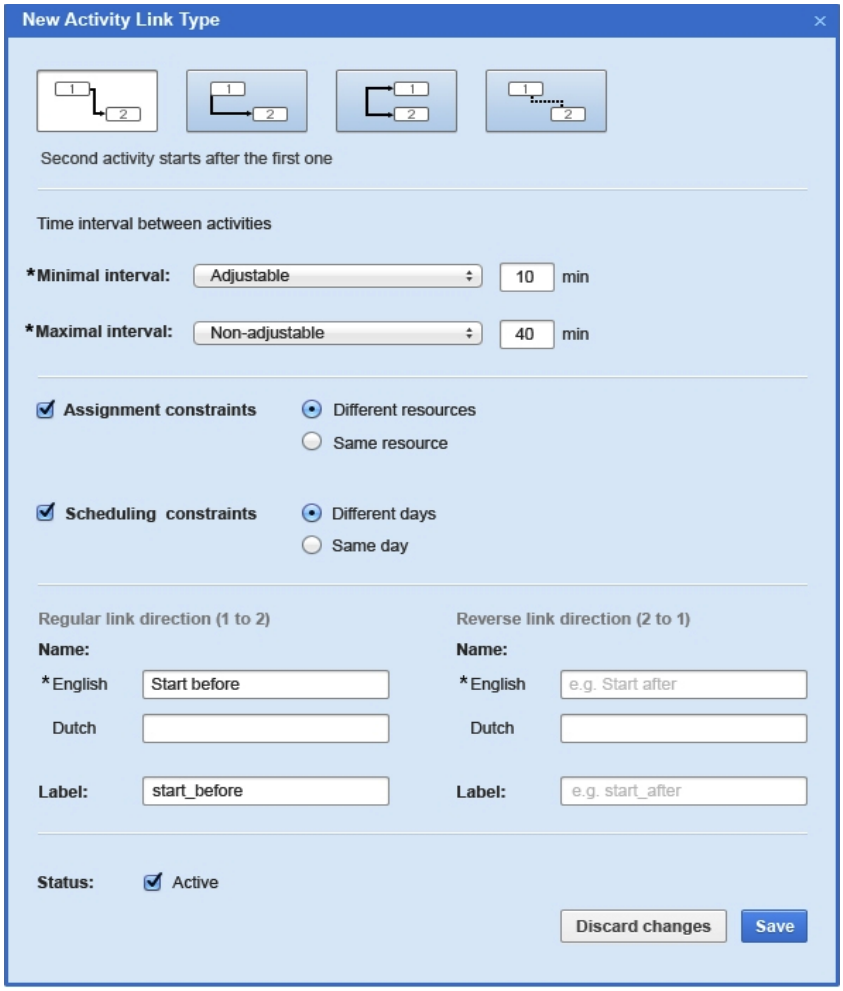


Figure 142: 'New Activity Link Type' window in version 4.5.0

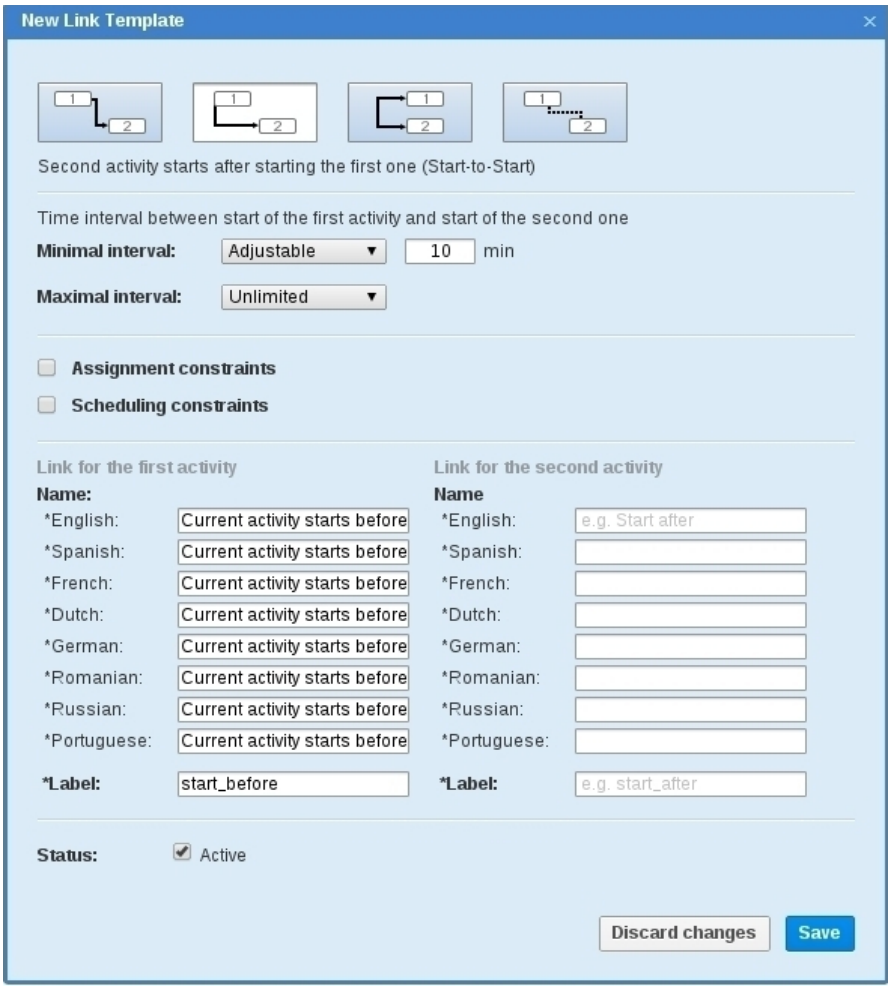


Figure 143: 'New Link Template' in version 4.5.2

4.3.4 'Monitored Inventory Fields' List Added to 'Activity History' Section of 'Display' Screen

The 'Activity history' section of the 'Display' screen has been expanded with the 'Monitored inventory fields' list, thus enabling the complete configuration of the 'History' tab of the 'Activity details' screen (Figure 144).

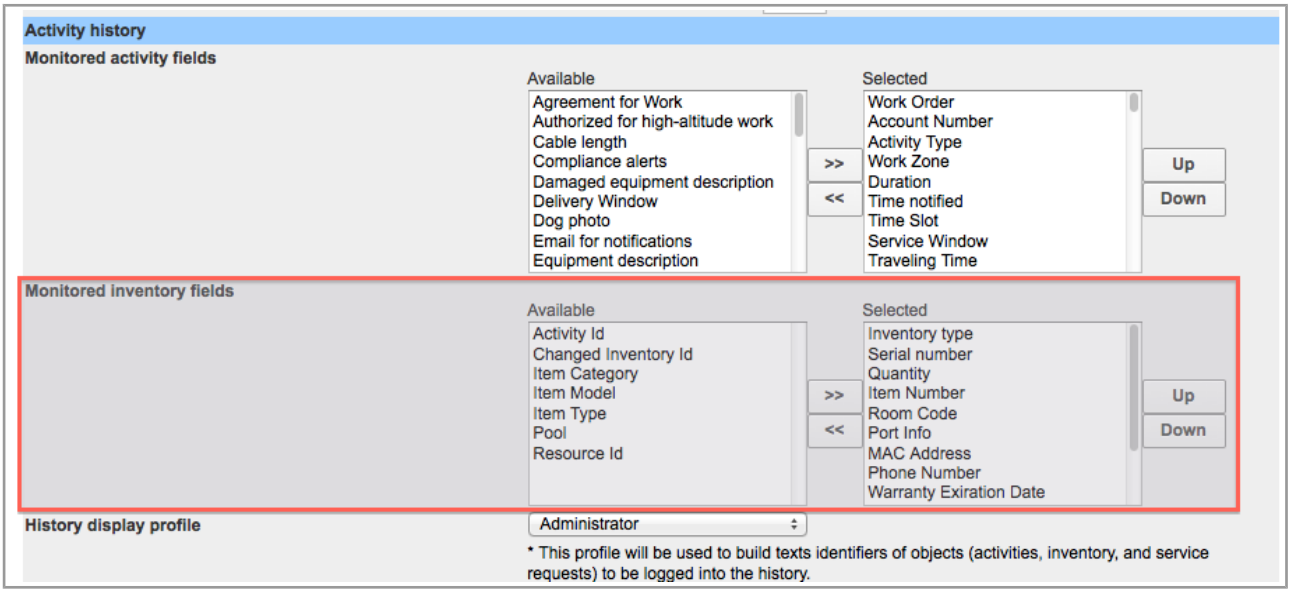


Figure 144: 'Monitored inventory fields' list

4.3.5 Teamworks No Longer Created with 'Teamwork' Activity Type Disabled

In the previous version deactivated teamwork activity types were still available for selection in the 'Activity Type' list (Figure 145-146).

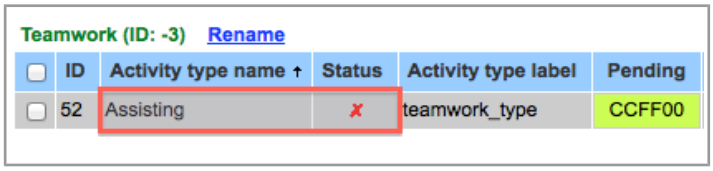


Figure 145: Teamwork deactivated in 'Activity Types' screen

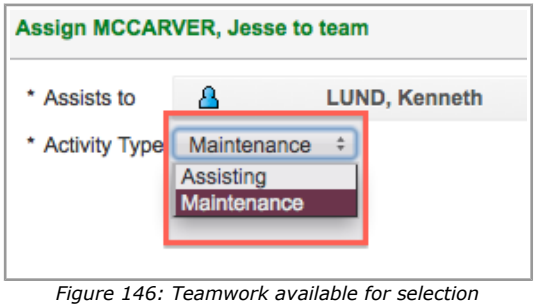


Figure 146: Teamwork available for selection

This issue has been resolved in version 4.5.2 where the 'Teamwork' screen displays only the active teamwork activity types.

4.3.6 Correct Context Used for 'Export' Action in Activities View

In the previous version the 'Export' action used the 'Print route (activity)' display context instead of the dedicated 'Activity fields for export' context. This could result in missing values in the resulting exported file.

In version 4.5.2 the script has been adjusted to use the correct context. The fields are now exported with correct values.

4.4 Company Settings

4.4.1 Validation and Import Windows Introduced for Context Layout Export and Import

The enhancement of the display profiles export/import functionality has called for the introduction of validation and import log windows. When the 'Validate' button is clicked, the file validation process begins

which can be monitored in the validation window (Figure 147).

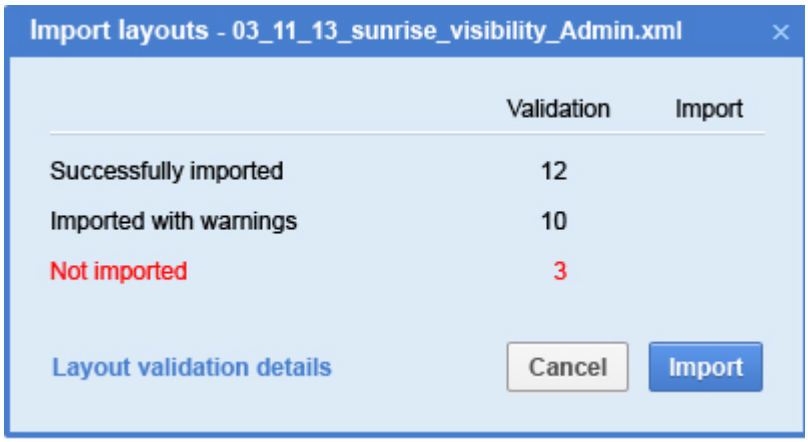


Figure 147: Validation window

The window shows the number of successfully imported layouts, layouts imported with warnings, and not imported layouts. Clicking the 'Import' button in the validation window starts the import process and opens the import window showing the import progress (Figure 148).

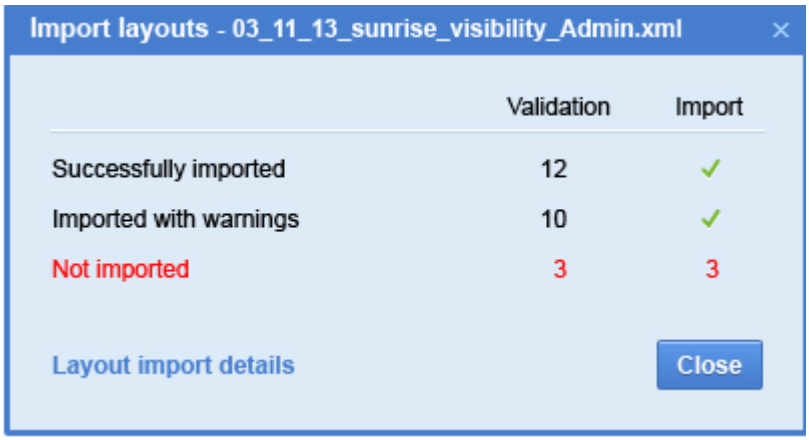


Figure 148: Import window

When the number of imported layouts is the same as the number of validated ones, the corresponding line will show a green tick, otherwise – the number of actually imported layouts.

4.4.2 'Work Zone Dictionary' Filter Improved

In the previous version the filter by "*" status which is designed to display work zones with all available statuses was working incorrectly – the system responded with the "Work zones not found. Change criteria and try again" message and no work zones were displayed (Figure 149).

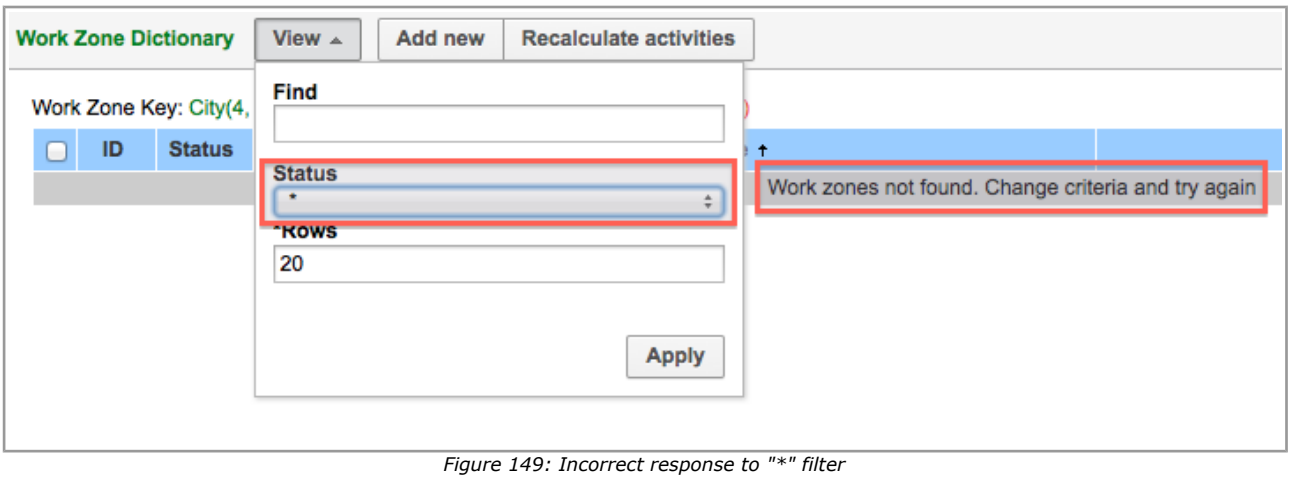


Figure 149: Incorrect response to "" filter*

In version 4.5.2 the filter works correctly and displays work zones according to the filter settings.

4.4.3 Contexts Now Shown in Lists of Corresponding Profiles

As of ETAdirect version 4.5.0 SOAP and Inbound Interface contexts have been separated from Manage and Mobility contexts and included in the API Configuration. However, the list of Manage and Mobility contexts still showed SOAP and Inbound Interface contexts and vice versa.

In version 4.5.2 the profiles separation has been improved, and now the SOAP and Inbound Interface contexts are only shown in the 'API Configuration' screen and the Manage and Mobility contexts – in the 'Display' screen.

4.4.4 Visibility Conditions Improved

In the previous version property visibilities worked incorrectly when applied to activities created before visibilities setting. Properties of activity-related action screens (except 'Add/Edit activity') were displayed ignoring the visibility conditions set after activity creation. For example, when visibility conditions of the 'Complete activity' screen properties were based on the W/O type, they were not applied to the completion of activities of the same W/O type started before the visibility setting.

In version 4.5.2 this issue has been addressed and now the visibility conditions based on the previously added data are applied correctly.

4.4.5 'Print Route (Activity)' Display Context Renamed

As of version 4.5.2 the 'Print route (activity)' display context has been renamed to 'Activity fields for print' for the Manage and Mobility Applications (Figure 150). This ensures the uniformity and consistency of the display context names.

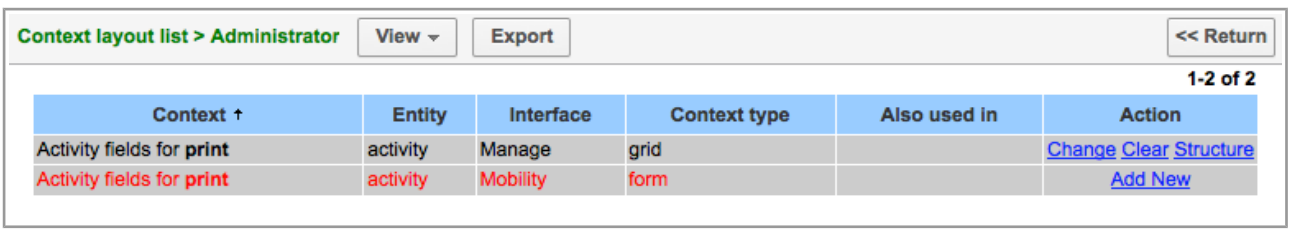


Figure 150: 'Activity fields for print' contexts

4.5 Map Issues

4.5.1 Activity Move in Map View Improved

In the previous versions activities could not be moved in the Map View when the Map was opened first for a future date and afterwards changed to today's date. The system responded with a 'Wrong data' error message and the move was not performed.

This issue has been resolved and the activity move is now performed correctly in the Map View.

4.5.2 Geocoding Settings in 'Business Rules' Checked

In the previous versions when Geocoding was disabled in 'Company Settings' → 'Business Rules', the system would still attempt to resolve the activity coordinates. The Map View would display the 'Geocoding activity...' message indefinitely.

In version 4.5.2 this issue has been fixed. The Business Rules are now checked in resolving coordinates, therefore, the Map View behavior is consistent with the Business Rules settings.

4.6 Routing GUI Improvements

4.6.1 Dynamic Routing Settings Cloned Correctly

In the previous versions cloning of a routing plan with Dynamic Routing enabled and the 'Stop loading when any limit is exceeded' option checked created a routing plan with the 'Stop loading when both limits are exceeded' option checked.

In version 4.5.2 the clone script has been improved to copy all data of the original routing plan. The cloned routing plan now has the same options as the original one.

4.6.2 Correct Error Message Shown for 'Add Routing Profile' Action

In the 'Add routing profile' window the 'Routing profile name' field is mandatory and an attempt to create a routing profile without a name results in an error message. However, in the previous versions the error message read 'is non-existent routing profile' which was confusing and irrelevant (Figure 151).

In version 4.5.2 the system responds with 'The "Routing profile name" field cannot be empty' which conveys a clear and transparent message (Figure 152).

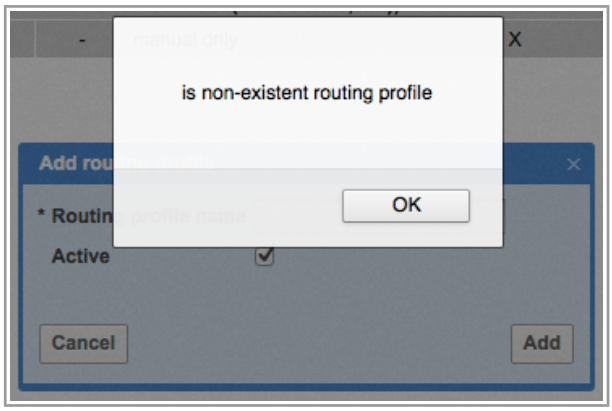


Figure 151: Before the change

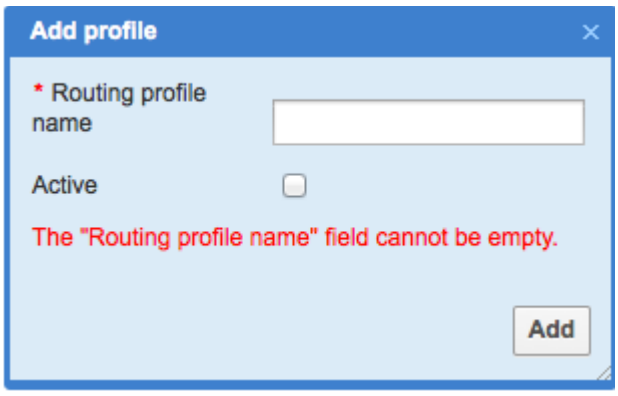


Figure 152: After the change

4.6.3 Inactive Routing Plan Search Improved

In the previous versions the search by 'Inactive' status in the 'Routing Profiles' screen returned only

inactive routing profiles while inactive routing plans were not shown. However, the search by 'Inactive' status should display both inactive routing profiles and inactive routing plans.
This issue has been addressed in version 4.5.2. Now the results of search by 'Inactive' status include both inactive routing profiles and inactive routing plans (Figure 153).

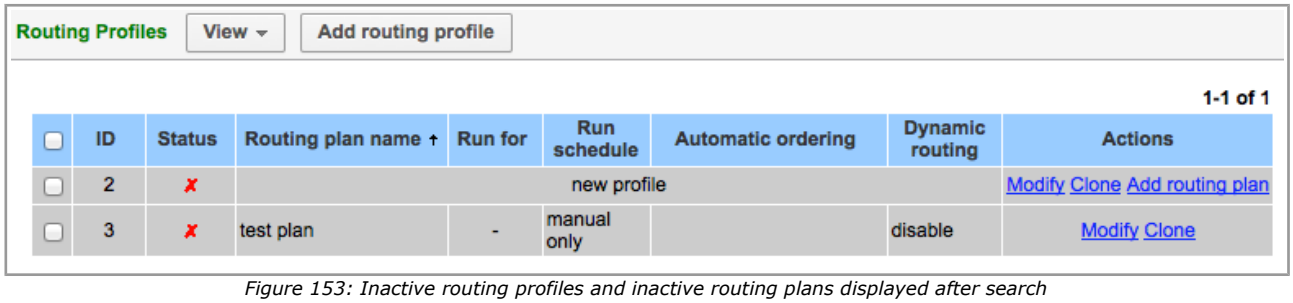


Figure 153: Inactive routing profiles and inactive routing plans displayed after search

4.6.4 Recurrent Routing Schedule Settings Improved

When 'recurrent' is selected in the 'Run routing' field of the 'Run schedule' section, the 'from' and 'to' fields appear where the period of the Routing run recurrence is to be specified. In the previous versions the 'minutes' fields were not pre-filled with 00, and when only hours were entered, the input was rejected with the 'Errors occurred: from time is incorrect, to time is incorrect' message (Figure 154).

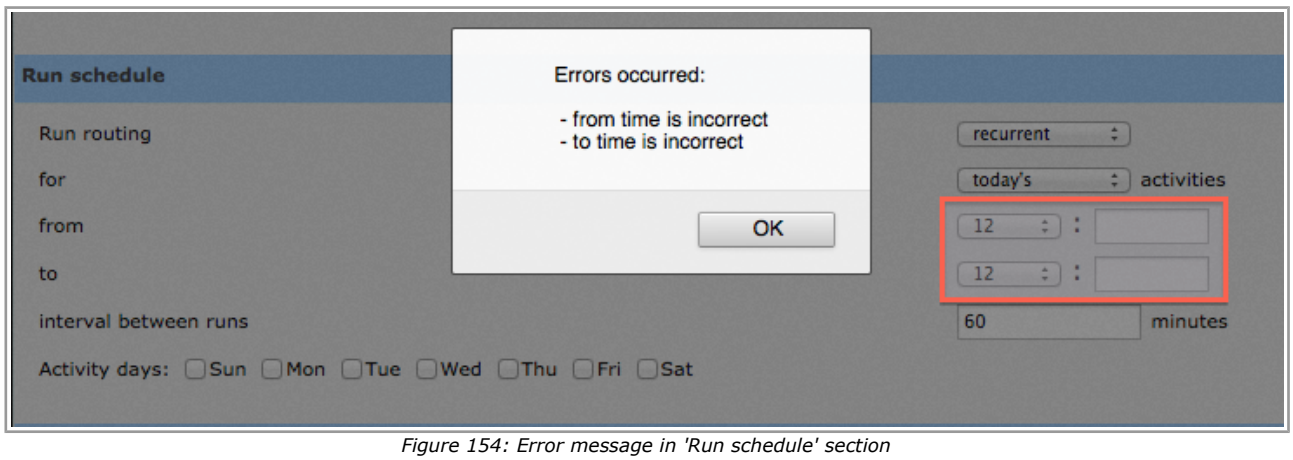


Figure 154: Error message in 'Run schedule' section

In version 4.5.2, Autocomplete for this section was added, which can 'guess' the format of the input data and prevent the error from displaying in case it had been set to hours only (Figure 155).

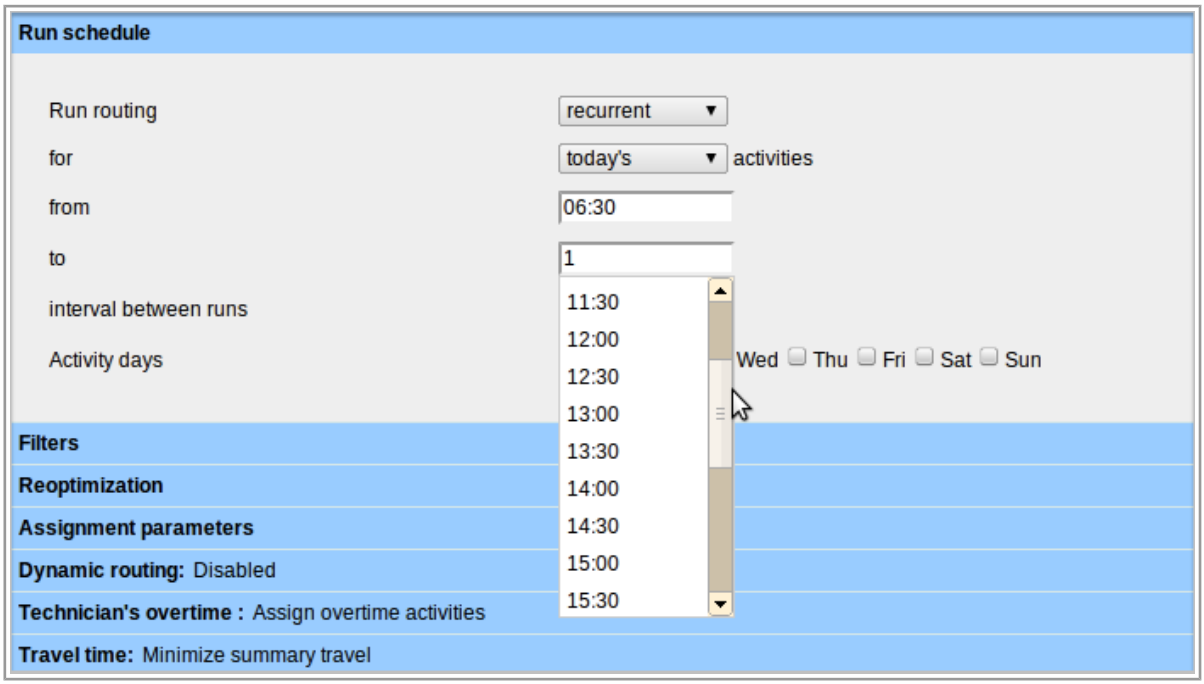


Figure 155: Autocomplete added

4.6.5 'Add Routing Plan' Functionality Improved

In the previous version adding a new routing plan with the 'Center point home zone support' checkbox checked or unchecked resulted in the 'Home zone radius overstep weight is out of range' error message. The routing plan was not added.

This issue has been fixed and now routing plans can be added with the 'Center point home zone support' checkbox unchecked.

4.6.6 'Delete' Button Shown Completely in 'Filters' Section

Depending on the browser and the screen resolution, in the previous version the 'Delete' button in the 'Filters' section of the 'Add/Edit routing plan' screen was either hidden completely or shown partially (Figure 156).

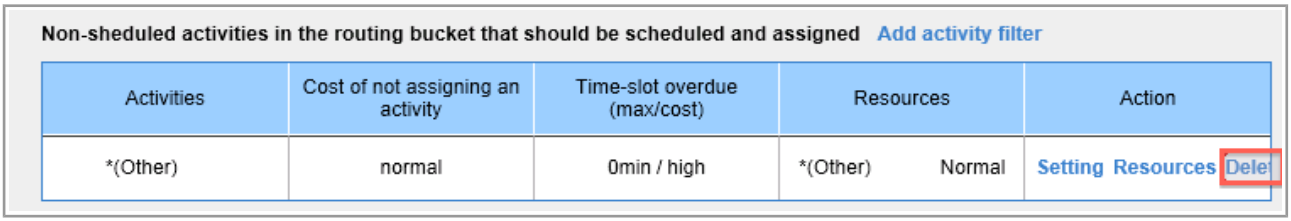


Figure 156: 'Delete' button shown partially

Now the action links style has been changed and they are displayed properly.

4.6.7 'Delete Filter' Confirmation Window Improved

When several filters were deleted from a routing plan immediately one after the other, the confirmation window had a 'Prevent this page from creating additional dialogs' checkbox (Figure 157). If this checkbox was checked, no confirmation window would appear for the next filter delete, therefore, the next filter

could not be deleted.

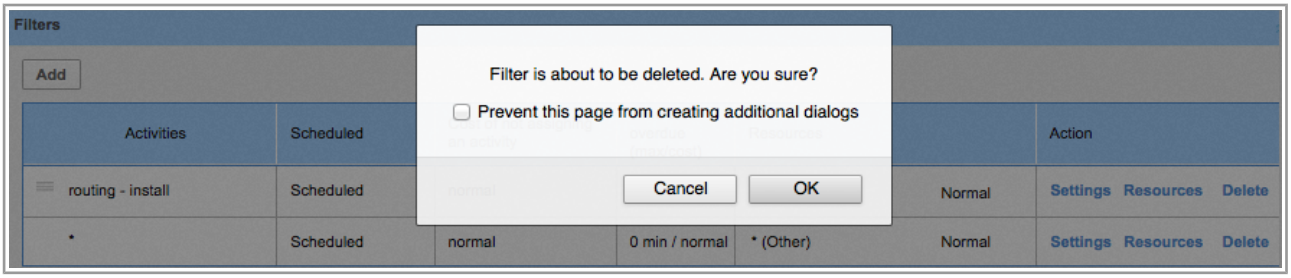


Figure 157: 'Delete filter' confirmation window

Now the 'Prevent this page from creating additional dialogs' checkbox no longer appears in the confirmation window, and filters can be deleted one after the other.

4.6.8 'Routing Profiles' Screen Loading Improved

When 'Company Settings' → 'Routing profiles' was selected, the 'Routing profiles' screen was not loaded while the screen displayed the 'Loading...' message indefinitely.

This issue has been resolved. Now the 'Routing profiles' screen can be accessed properly.

4.7 Mobility Application

4.7.1 Display Mode Improvements

4.7.1.1 Display Mode Applicable to Each Group of Columns

As of ETAdirect version 4.5.0 the Mobility Application offers the option of selecting the display mode. There are three available modes – classic mode, tile mode and multi-screen mode.

In each mode the data is organized in sections which form columns separated by end-of-column markers. Groups of columns are separated by groups of tabs.

As of version 4.5.2 the display mode selected by the user will apply to each group of columns.

4.7.1.2 'Submit' and 'Dismiss' Buttons Accessible in Tile Mode

In the 'Add activity' and 'Cancel activity' screens the 'Submit' and 'Dismiss' buttons were not available when the activity to be added or canceled had properties with visible content occupying large screen space. This occurred when Tile display mode was selected.

This issue has been resolved by adding the group of columns resize and their position recalculation after property value change. Now the 'Dismiss' and 'Submit' buttons are visible for activities with properties with large visible content.

4.7.1.3 Calculation of Number of Columns in Tile Mode

The number of columns visible on the screen in the Tile Mode can be different on different mobile devices as well as in different screen orientations (horizontal or vertical). The number of columns depends on the actual width of the group of columns displayed.

However, the width of the group of columns and, therefore, the number of columns is not directly dependent on the resolution of the mobile device screen. It depends on the size of the viewport of the specific browser in which the application is used. The viewport may be smaller than the device screen. Therefore, the calculation of the number of columns displayed is to be based on the viewport size rather than on the screen resolution.

4.7.2 'Service Request' Screen Improved

In the previous version the 'Send request' screen which should be accessible by clicking the 'Send request' button was not opened. No service requests could be sent.

In version 4.5.2 this issue has been resolved. The 'Send request' screen can be opened and service requests can be sent properly.

5 Changes and Improvements to Version 4.5.3

5.1 4.5.2 to 4.5.3 Changes Overview

- 'Identify...' contexts now have correct interface identifier
- Error messages in 'Display' screen shown correctly
- Visibilities modification improved
- 'Unresponsive script' warning no longer appears in 'Context layout structure' screen
- 'Select technician' action link improved
- New message blocking conditions related to time of activity booking introduced
- Filter permissions saved properly
- File properties saved correctly
- Group actions improved
- Group move of large number of activities possible
- Dragging and dropping activities in Time View improved
- Activity Type deletion improved
- Warning messages in 'Add/Modify Link Template' window redesigned
- 'Assignment parameters' section redesigned
- Resource filters editing improved
- Routing plan filters – 'Assigning activities which are about to be late' settings saved properly
- Routing profiles/plans search improved
- Routing plans now added with correct status
- Routing plan creation improved
- Routing plan cloning improved
- Internet Explorer 8 – filter deletion improved
- Internet Explorer 8 – routing plan editing improved
- Routing usability in overnight work improved
- Routing supports maximum start time for linked activities
- 'Adjust end time' action functions properly
- Multiple clicks on 'Submit' button no longer result in multiple actions
- Internet Explorer 8 compatibility improved
- 'Back' buttons look the same in different browsers
- 'Activity History' screen added to Mobility Application
- Long property names displayed correctly
- Display mode options redesign
- 'Mean time to deliver' report shows two intervals
- 'Work Type' filter improved
- 'All Reports' screen usability improved
- Default duration applied only to activities with undefined duration
- Double clicking 'Validate' button no longer hangs up import process

5.2 Manage Application

5.2.1 'Identify...' Contexts Now Have Correct Interface Identifier

In the previous version a search by 'identify' key in the context layout screen returned 'Identify activity by', 'Identify inventory by' and 'Identify service request by' contexts which were shown as belonging to the Manage Application (Figure 158), when, in fact these contexts belong to the Mobility Application.

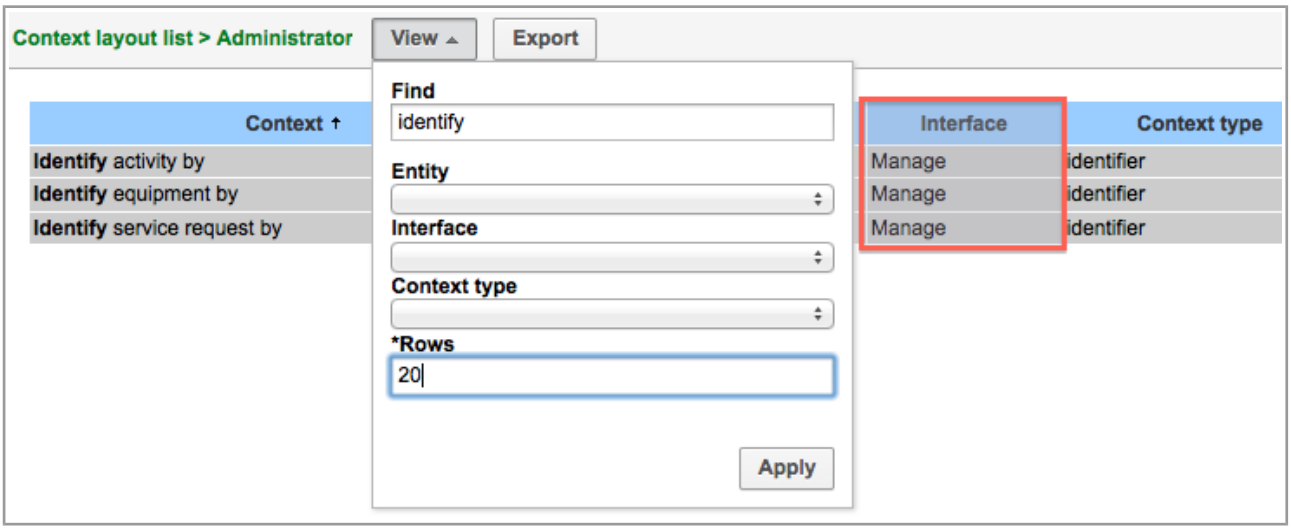


Figure 158: 'Identify...' contexts shown as belonging to Manage Application

In version 4.5.3 the context fields have been adjusted so that the contexts list now shows Mobility as the interface for the 'Identify...' contexts.

5.2.2 Error Messages in 'Display' Screen Shown Correctly

When during the 'Display' configuration the user entered incorrect values in several fields, the error messages were shown in one line (Figure 159). This made the system response unclear and incomprehensible.

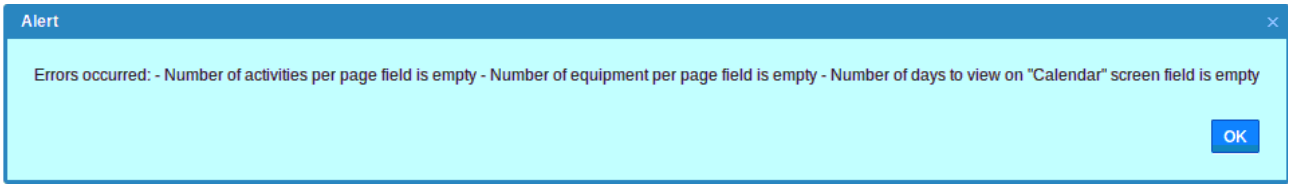


Figure 159: Error messages shown in one line

In version 4.5.3 each error message is shown in a separate line which increases their transparency (Figure 160).

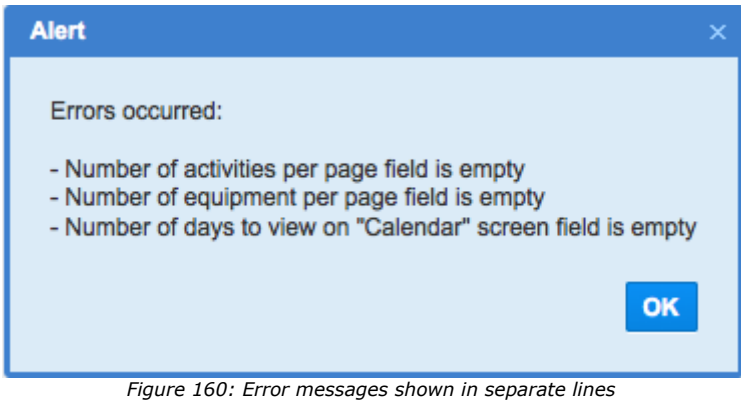


Figure 160: Error messages shown in separate lines

5.2.3 Visibilities Modification Improved

In the previous version any modification of a field or value visibility resulted in a new field/value creation rather than change of the existing one (Figure 161-162).

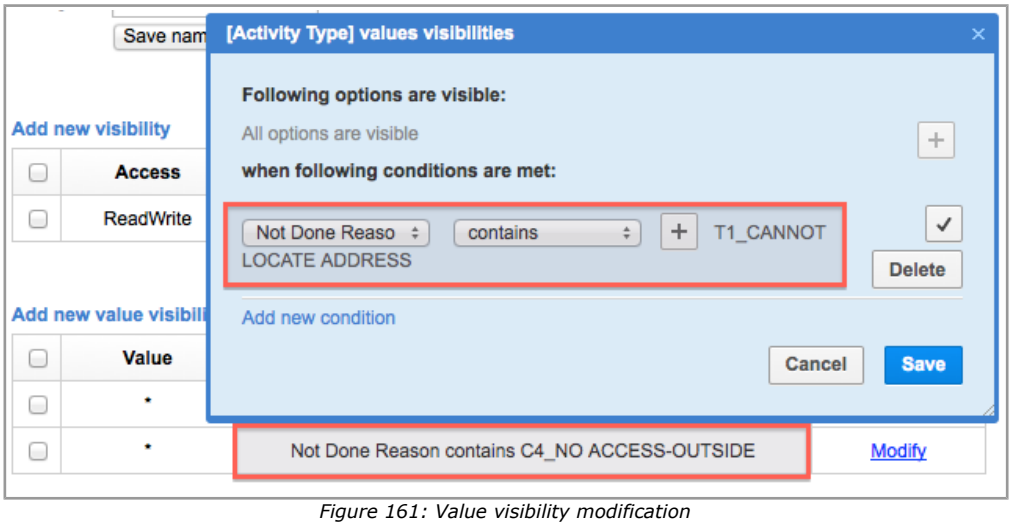


Figure 161: Value visibility modification

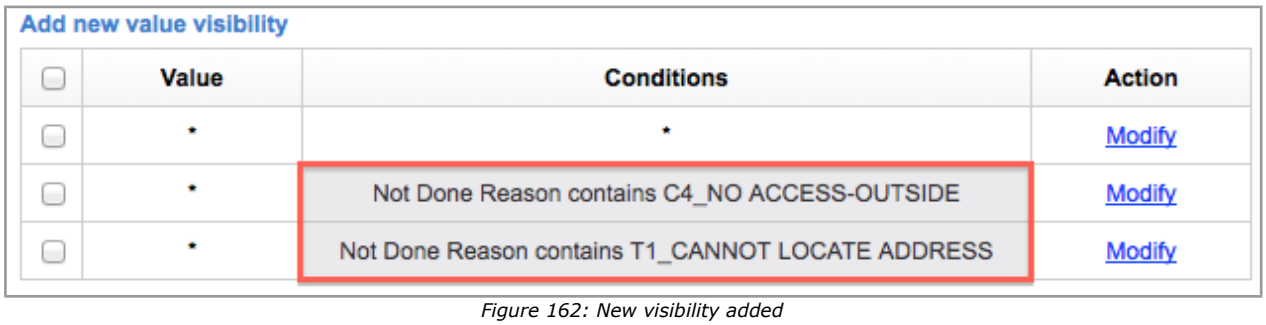


Figure 162: New visibility added

In version 4.5.3 the field and value visibilities can be modified properly.

5.2.4 'Unresponsive Script' Warning No Longer Appears in 'Context Layout Structure' Screen

In some cases when a user edited a context layout structure, the screen would become grey and an 'Unresponsive script' warning appeared (Figure 163).

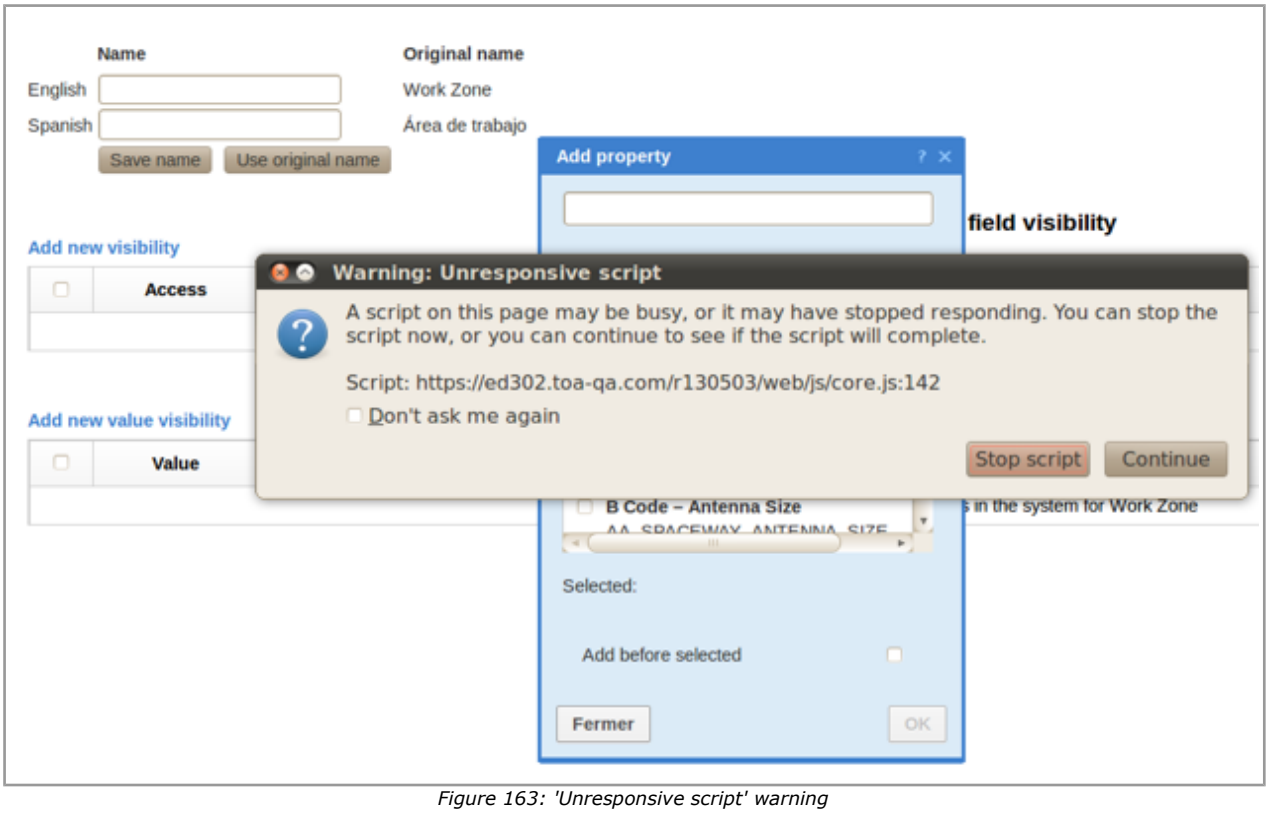


Figure 163: 'Unresponsive script' warning

The necessary changes have been made, and now context layout structures can be edited properly.

5.2.5 'Select Technician' Action Link Improved

The 'Select technician' action link in the resource hint did not produce the expected result. By design, this link should open the Resource Tree branch up to the selected technician (when 'Apply hierarchically' is enabled in the 'View' window).

However, clicking this action link produced no effect – the Resource Tree branch was not displayed.

This issue has been fixed in version 4.5.3, and now the 'Select technician' action link works properly.

5.2.6 New Message Blocking Conditions Related to Time of Activity Booking Introduced

With the introduction of the new 'Time of booking' property allowing to determine the time of activity booking/creation, three new message blocking conditions have been introduced (Figure 164):

- activity/Time of booking
- activity/Days from activity booking
- activity/Calendar days from activity booking

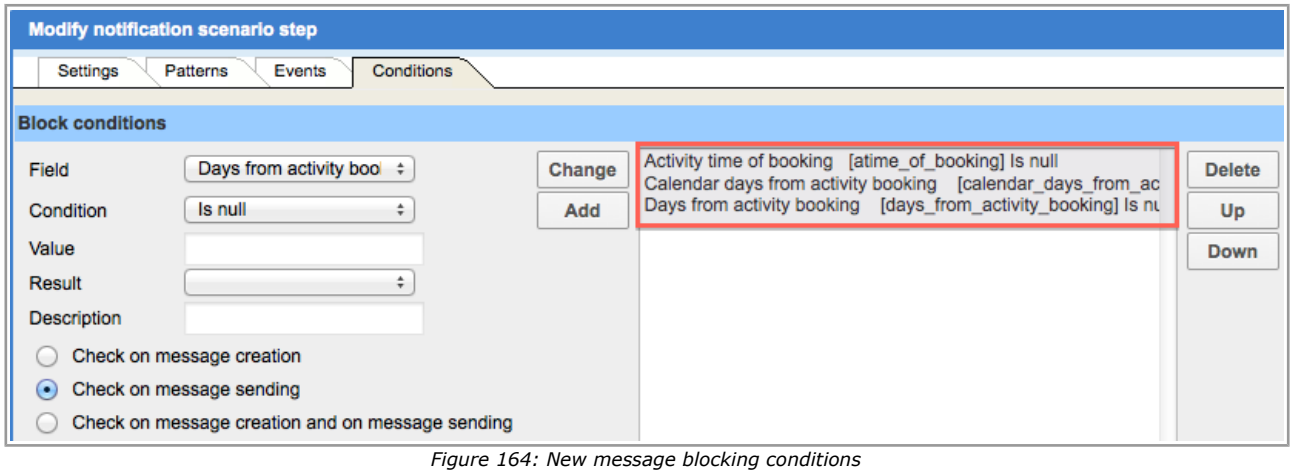


Figure 164: New message blocking conditions

Please consult the table below for the description and suggested values of the new blocking conditions:

Condition	***Suggested functions***	***Value format***	***Description***	***Examples***
activity/Time of booking	IS NULL IS NOT NULL CONTAINS DOESN'T CONTAIN < >	YYYY-MM-DD HH24:MI:SS	Condition allowing to check the time of activity booking. The time to be checked uses the time zone of the resource the activity is assigned to.	Condition: "Time of booking" CONTAINS "2012-05-21" Result: block all activities that were booked on "2012-05-21" Condition: "Time of booking" < "2012-05-21" Result: block all activities that were booked before "2012-05-21"
activity/Days from activity booking	IN NOT IN < <= > >=	0, 1, 2, ...	The number of days elapsed from the activity booking. This parameter is calculated as the number of full days between the time of activity booking and the current time.	Condition: "Days from activity booking" = 0 Result: all activities that were booked within the last 24 hours If the current time is "2012-09-27 08:28:22", the condition will return the activity booked at "2012-09-

				26 19:17:00".
activity/Calendar days from activity booking	IN NOT IN < <= > >=	0, 1, 2, ...	This parameter is calculated as the number of calendar days from the date of the activity booking to the current date of the resource the activity is assigned to. Both of these dates are represented using the same time zone difference.	Condition: "Calendar days from activity booking" <= 1 Result: all activities booked/created yesterday (1) or today (0)

5.2.7 Filter Permissions Saved Properly

In the previous version no permissions were saved for a filter in the 'Company Settings' → 'Filters' screen. All filter permissions were deleted.

In version 4.5.3 the permissions sending format has been improved, and now the selected filter permissions are saved properly.

5.2.8 File Properties Saved Correctly

File properties were not saved, even when they were correctly configured with the appropriate MIME type selected. The system responded with the 'Error occurred: Property typer mismatch' message.

In version 4.5.3 this issue has been addressed. Now file properties can be saved correctly.

5.3 Activity Features

5.3.1 Group Actions Improved

Group actions in the Activities View ('Change' or 'Cancel' of several activities at the same time) were unsuccessful – the action was not performed and an error message was displayed (Figure 165).

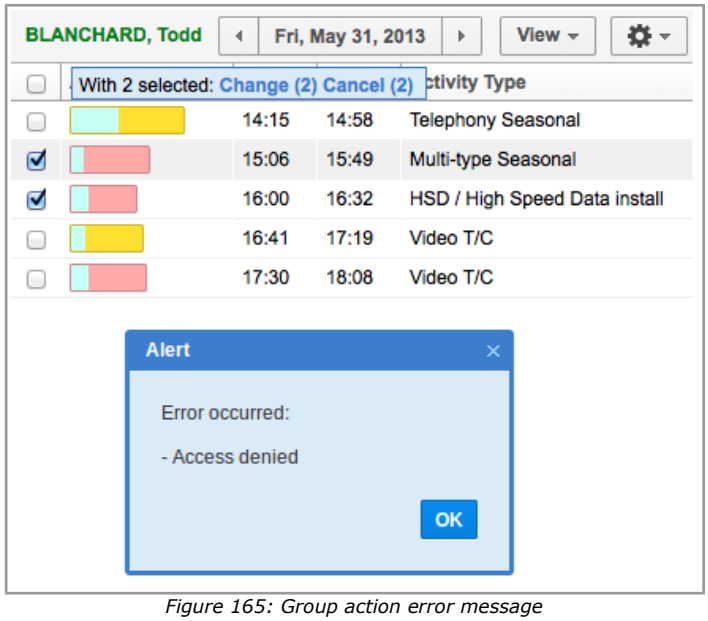


Figure 165: Group action error message

This issue has been addressed in ETAdirect version 4.5.3 – group actions are performed properly.

5.3.2 Group Move of Large Number of Activities Possible

In the previous version a move involving a large number of activities (>100) resulted in error messages. No activities were moved.

- When the activities were selected by clicking 'Select all' and then moved, the system responded with the 'Error occurred: Date is wrong' message (Figure 166).

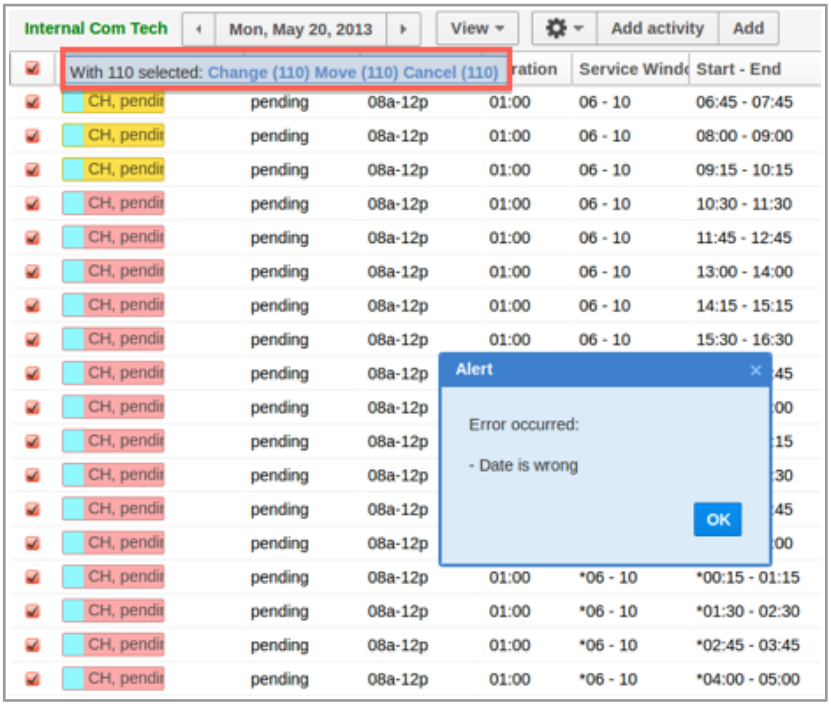


Figure 166: Error message for moving all activities

- When more than 100 activities (but not all) were selected in the list and then moved, the system responded with the 'Error occurred: No activities to move' message (Figure 167).

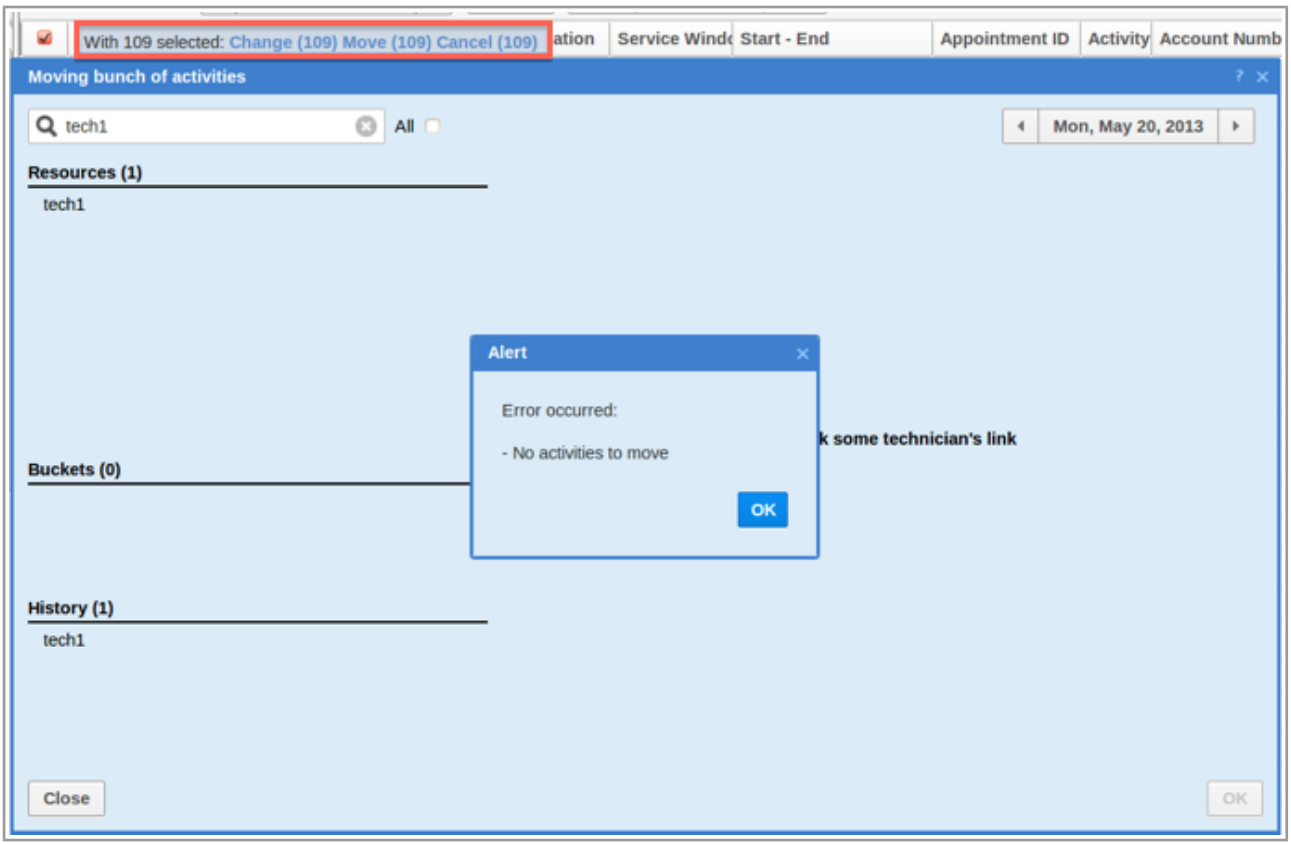


Figure 167: Error for moving more than 100 activities

In version 4.5.3 the group move functionality has been improved and now allows moving large numbers of activities successfully.

5.3.3 Dragging and Dropping Activities in Time View Improved

In the previous version an activity move between resources by dragging and dropping in the Time View resulted in activity hints stuck on the screen and unexpected errors appearing in the log (Figure 168). The activity was not moved.

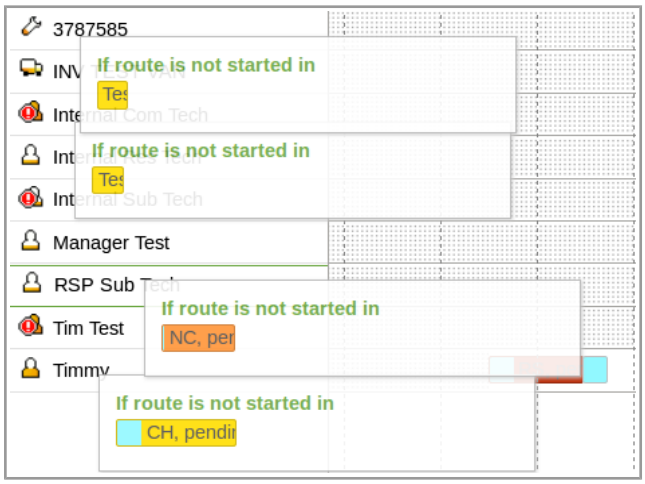


Figure 168: Hints stuck on the screen

The unsuccessful move issue has been fixed in version 4.5.3. Now activities can be moved by dragging and dropping in the Time View.

5.3.4 Activity Type Deletion Improved

In the previous version a newly-created activity type (which had never been used) could not be deleted. A 'Loading...' message was displayed on the screen indefinitely and an error was written to the log.
This issue has been fixed in version 4.5.3. Activity Types can now be deleted properly, and no errors are logged anymore.

5.3.5 Warning Messages in 'Add/Modify Link Template' Window Redesigned

According to the previous design, when any invalid values were entered in the fields of the 'Add/Modify Link Template' window, the window showed several error messages in the bottom of the window. Also, the fields which had to be filled-in correctly were highlighted in red (Figure 169).
At the same time, the system showed incorrect warnings for the situations when the minimal interval value was greater than the maximal interval value. The messages were as follows:

- Minimal interval value should be equal to or greater than maximal interval value
- Maximal interval value should be equal to or less than minimal interval value

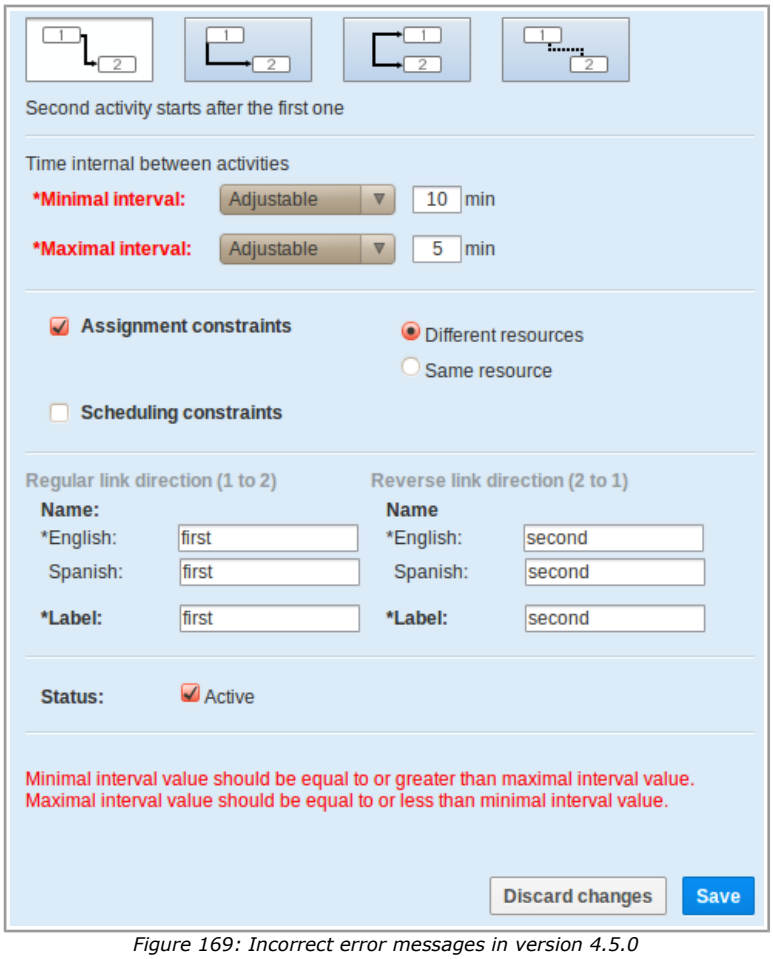


Figure 169: Incorrect error messages in version 4.5.0

In version 4.5.3 the error messages have been changed to carry the correct meaning. At the same time the design of error messages in this window has been changed. Now only one error message is displayed and, if more than one field contain invalid values, the message includes the "(and N more)" warning, where N is the number of remaining errors (Figure 170). The fields containing invalid values are highlighted in red. As soon as the first displayed error is fixed and 'Save' is clicked, the next error message is displayed and the number in parenthesis decreases.

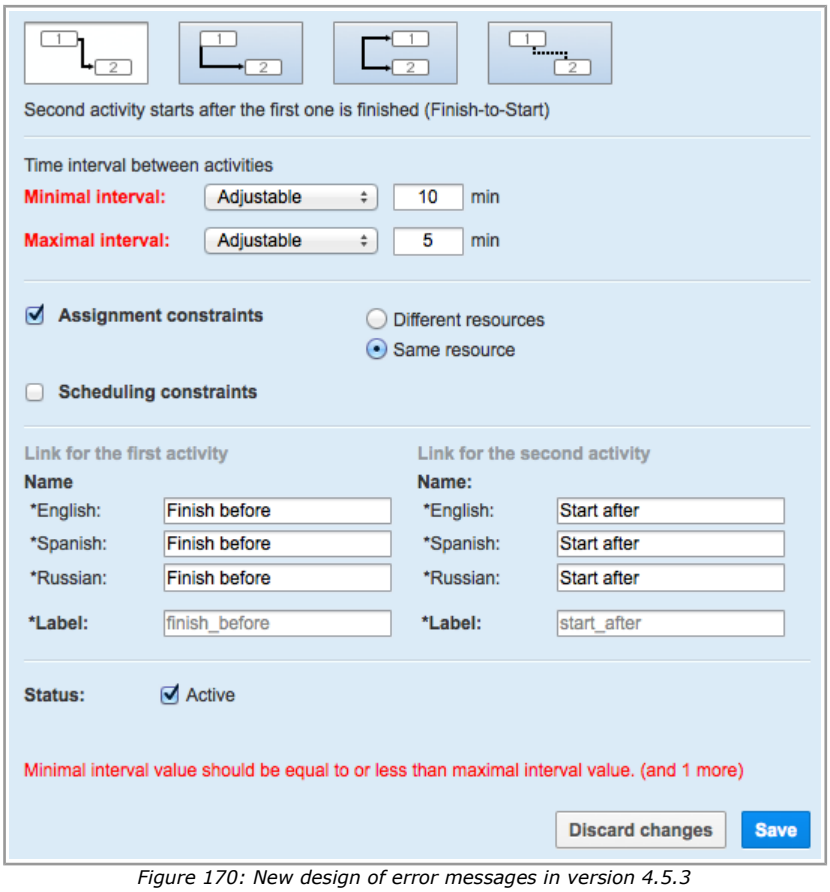


Figure 170: New design of error messages in version 4.5.3

5.4 Routing GUI

5.4.1 'Assignment Parameters' Section Redesigned

In version 4.5.3 the 'Assignment parameters' section of the 'Routing plan' has been redesigned as follows (Figure 171):

- a new 'Enable routing by inventory' checkbox enabling or disabling the 'Routing by Inventory' feature has been added. It is accompanied by the explanations of the basic concept of activities assignment by required inventory.
- the 'Dynamic routing' section has been included in the 'Assignment parameters' section.
- the 'Route uniformity' checkbox has been renamed to 'Try to schedule activities to service window start'. The checkbox performs the same action but has a clearer name. It is accompanied with the explanation of the possible consequences of enabling this option.

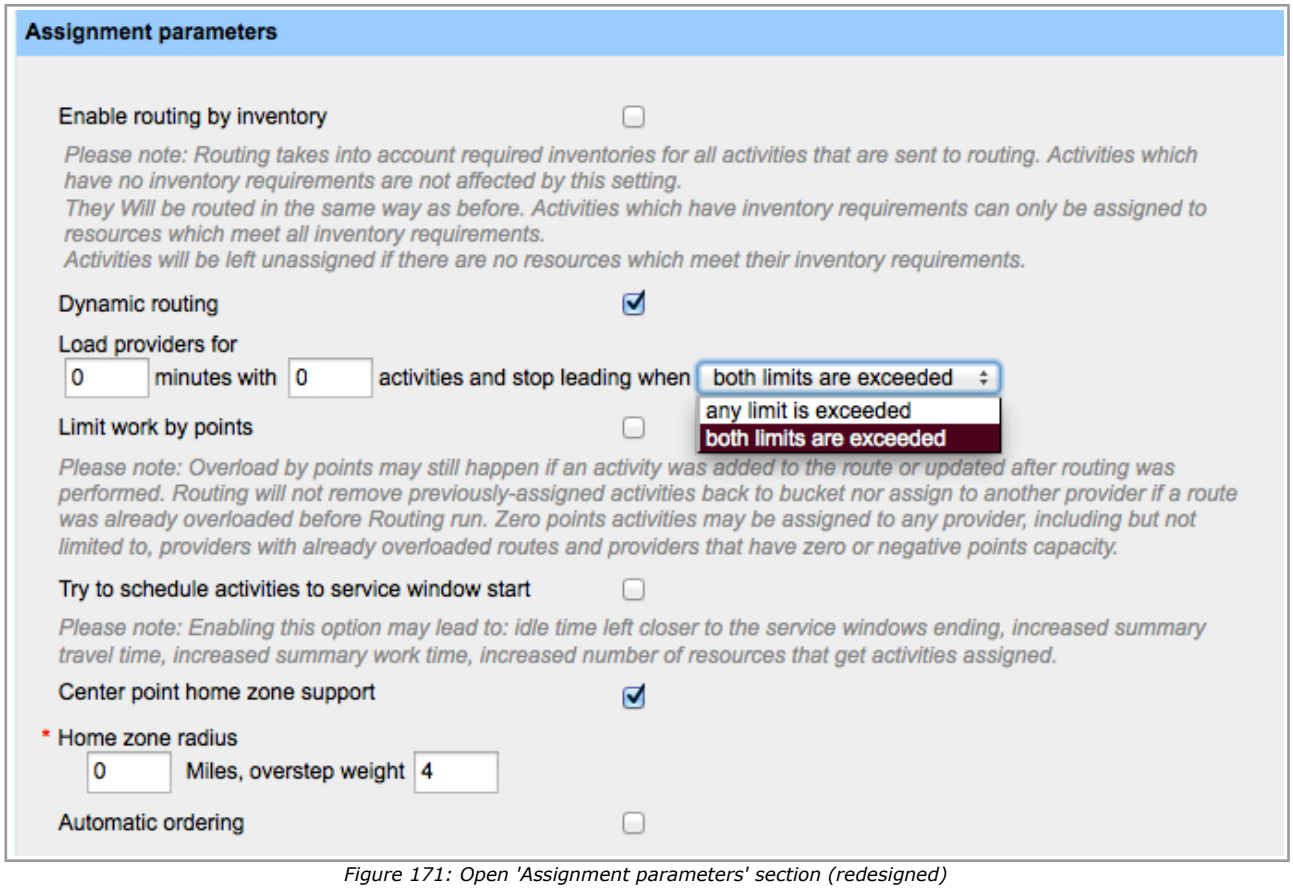


Figure 171: Open 'Assignment parameters' section (redesigned)

When closed, the 'Assignment parameters' section of the 'Routing plan' contains the summary of the selected options (Figure 172).

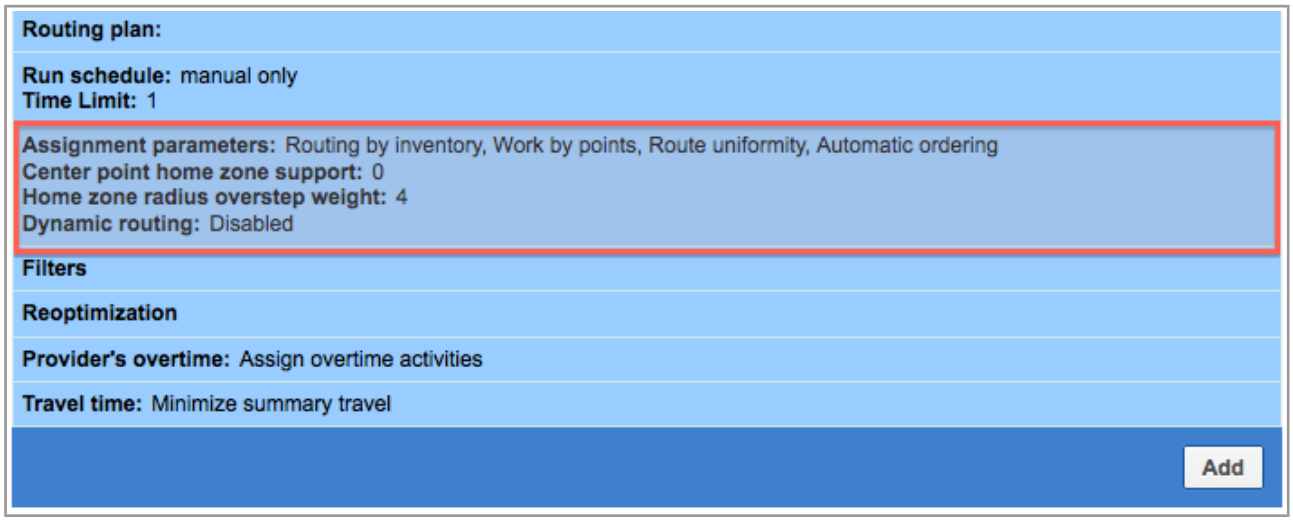


Figure 172: Closed 'Assignment parameters' section

5.4.2 Resource Filters Editing Improved

In the previous version the edit button (the "pencil-button") was missing in the 'Resource' column in the 'Set of activities to be assigned' window of the 'Filters' section. The 'Click 'edit' to modify the filters' hint

was absent as well (Figure 173).

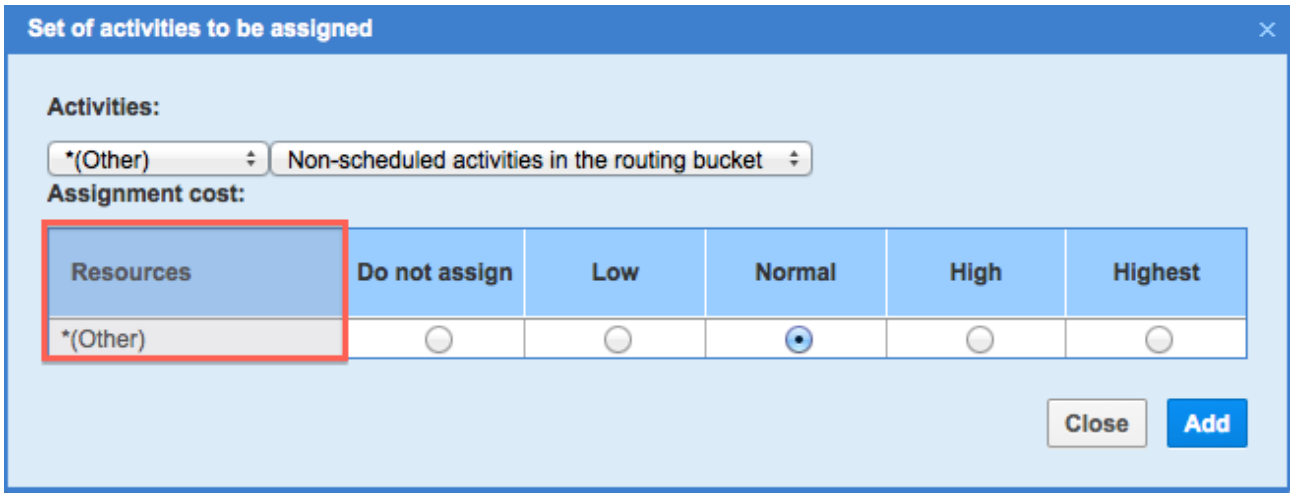


Figure 173: 'Edit' button missing for Resource filters

In version 4.5.3 the edit button allowing to change the Resource filters is available. The 'Click 'edit' to modify the filters' hint suggesting the correct action to the user is also visible (Figure 174).

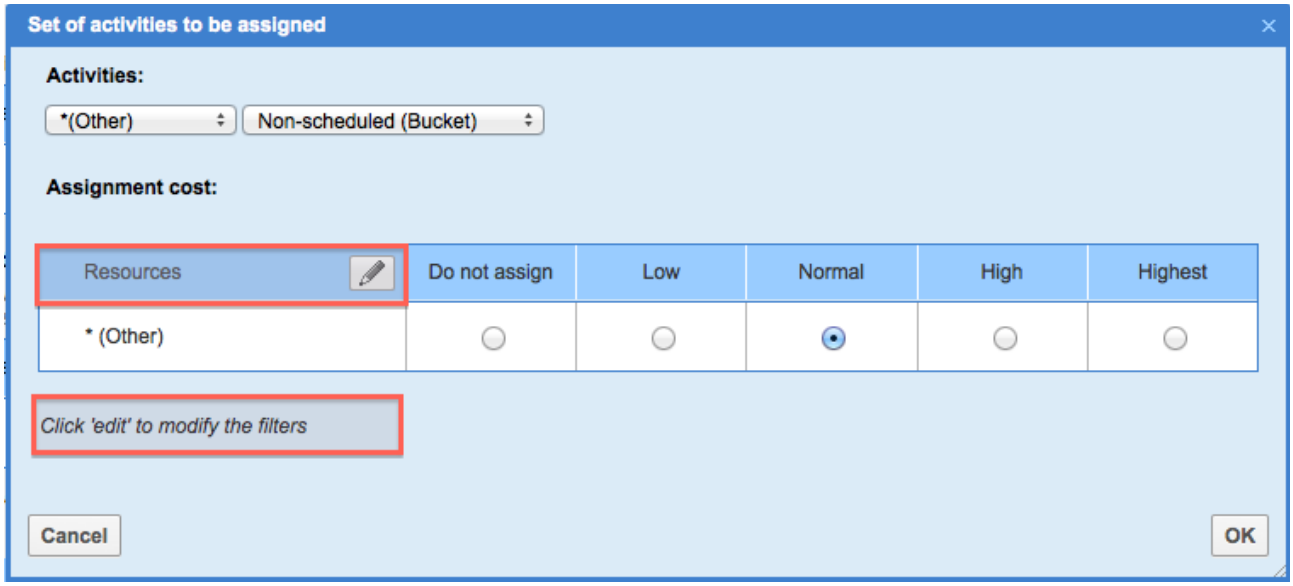


Figure 174: 'Edit' button available for Resource filters

5.4.3 Routing Plan Filters – 'Assigning Activities Which Are about to Be Late' Settings Saved Properly

When a user selected the *"Do not assign activities if technician is unlikely to arrive > min. before end of time-slot*"* option and entered a valid value in this field, the settings were not saved with a 'Time-slot overdue is invalid' error message.

In version 4.5.3 the validation of the time-slot overdue field has been improved, so that valid field values are saved without errors.

5.4.4 Routing Profiles/Plans Search Improved

When a non-existing routing profile or plan was entered in the 'Find' field of the 'View' window, an empty

routing profiles table was shown and an error was written to the log.

In version 4.5.3 when a search returns no matching results, the "Routing profiles/plans not found. Change criteria and try again" message is displayed (Figure 175), and no errors are logged.

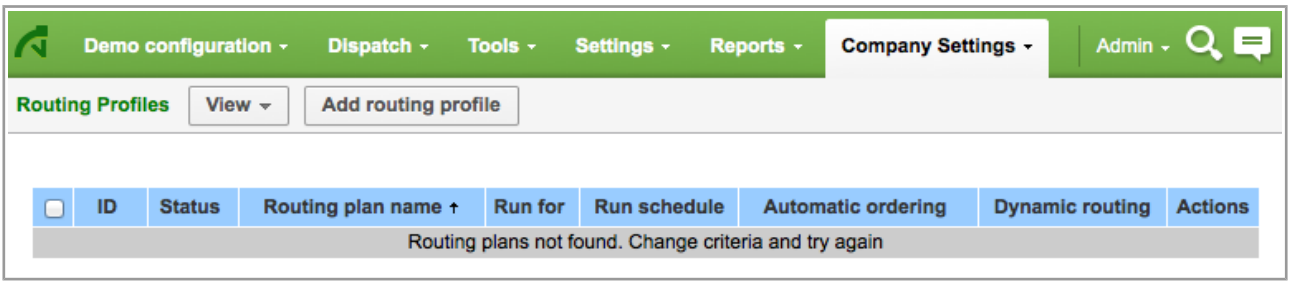


Figure 175: Message displayed after unsuccessful search

5.4.5 Routing Plans Now Added with Correct Status

In the previous version, when an active routing plan was added, it was displayed in the list with the inactive status.

This issue has been resolved in version 4.5.3, and now the routing plans are displayed with the same statuses with which they were created.

5.4.6 Routing Plan Creation Improved

No routing plans with “once a day” or “recurrent” entered in the 'Run schedule' section were saved and added to the list.

In version 4.5.3 the necessary changes have been made, and now routing plans can be created properly with any 'Run schedule' settings.

5.4.7 Routing Plan Cloning Improved

In version 4.5.3 a number of issues related to routing plan cloning have been resolved.

- When the 'Avoid travels longer than N minutes, even though some activities might not be assigned and summary travel might increase.' parameter was changed to 'Minimize summary travel even if some activities require long travel times.' in the 'Travel time' section, such routing plan could not be cloned afterwards.

  This issue has been resolved, and now routing plan cloning is processed properly.
- The cloning action should copy all parent routing plan settings except the name. However, in the previous version the name of the cloned routing plan was filled-in with the parent routing plan name.

  In version 4.5.3 the routing plan name is cleared during cloning, therefore, the cloned routing plan has an empty name field.

5.4.8 Internet Explorer 8 – Filter Deletion Improved

When ETAdirect was used in Internet Explorer 8, the filter deletion confirmation window was not closed when the user clicked 'OK'. The filter was not deleted, and an error was written to the log.

This issue has been fixed in version 4.5.3. The filters can be deleted with no errors, thus improving the system compatibility with the Internet Explorer 8 browser.

5.4.9 Internet Explorer 8 – Routing Plan Editing Improved

When a user working in Internet Explorer 8 created a routing plan with all activity locations used in the filters, such routing plan could no longer be opened.

In version 4.5.3 routing plans can be saved and subsequently opened without errors.

5.4.10 Routing Usability in Overnight Work Improved

When "Overnight" was enabled in the 'Business Rules', the 'Routing' screen did not show the 'Start manually' action link for yesterday's date. Only the 'Modify' link was displayed (Figure 176).

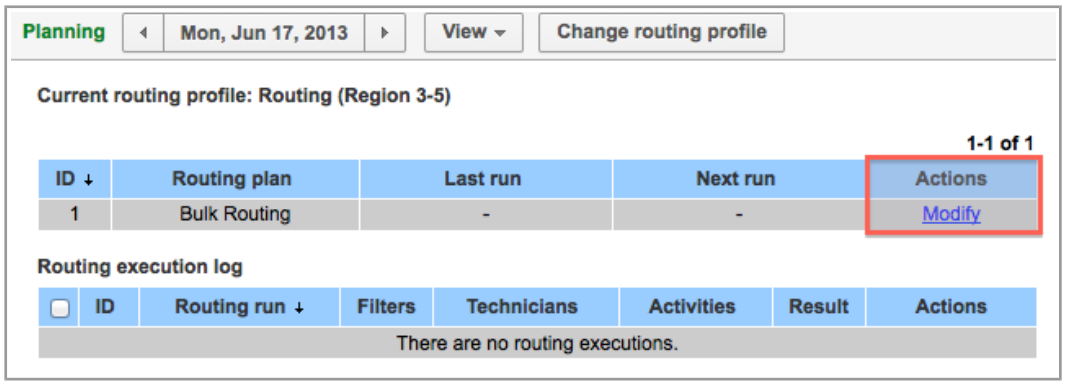


Figure 176: 'Start manually' link missing

In version 4.5.3 both 'Modify' and 'Start manually' links are shown for today's and yesterday's dates, thus increasing the Routing usability in the overnight mode.

5.5 Routing

5.5.1 Routing Supports Maximum Start Time for Linked Activities

In some cases only one of two linked activities is sent to Routing. However, the start time constraints defined for the link between the activities must be observed.

For this purpose, a new attribute, 'link_max_eta', has been implemented in Routing. This attribute defines the maximum start time of the linked activity.

5.6 Mobility Application

5.6.1 'Adjust End Time' Action Functions Properly

In the previous version an attempt to delay a started activity by means of the 'Adjust end time' action produced no result and caused an internal error to appear.

After the necessary changes activity time adjustment can be performed properly and no errors appear any longer.

5.6.2 Multiple Clicks on 'Submit' Button No Longer Result in Multiple Actions

When the Mobility Application of ETAdirect was used with slow internet connections, several clicks on the 'Submit' button resulted in duplicated actions – several similar inventories or activities were created or, when the 'Submit' button was clicked to start an activity – a warning message appeared.

This issue has been resolved in version 4.5.3, and now the 'Submit' button gets disabled after the first click and can no longer initiate form submission.

5.6.3 Internet Explorer 8 Compatibility Improved

When ETAdirect Mobility Application was used in the Internet Explorer 8 browser, the Activity List could not be loaded, and an error message was displayed (Figure 177).

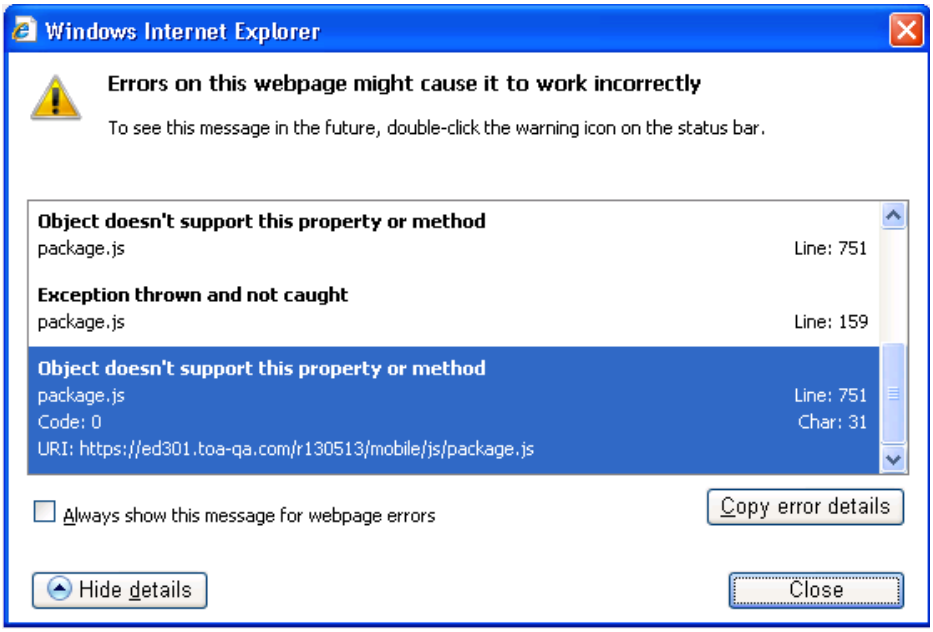


Figure 177: Internet Explorer 8 error message

In version 4.5.3 the elements not supported by IE8 have been changed to ensure the application usability in Internet Explorer 8.

5.6.4 'Back' Buttons Look the Same in Different Browsers

The buttons returning the user to the previous screen in the Mobility Application had different gradient direction and thus looked different (Figure 178). For example, the buttons in Firefox and the latest version of Chrome had horizontal gradient direction, while in other browsers – vertical direction.

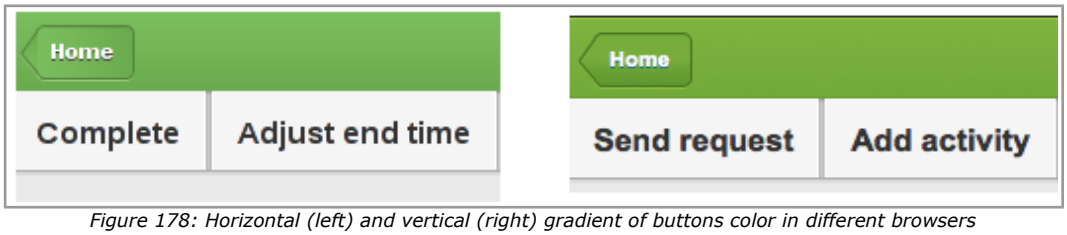


Figure 178: Horizontal (left) and vertical (right) gradient of buttons color in different browsers

In version 4.5.3 the 'Back' buttons in all browsers have vertical gradient direction giving the system a uniform appearance.

5.6.5 'Activity History' Screen Added to Mobility Application

As of version 4.5.3 'Activity history' can also be viewed in the Mobility Application. For this purpose the 'History' button has been added to the 'Activity details' screen (Figure 179).

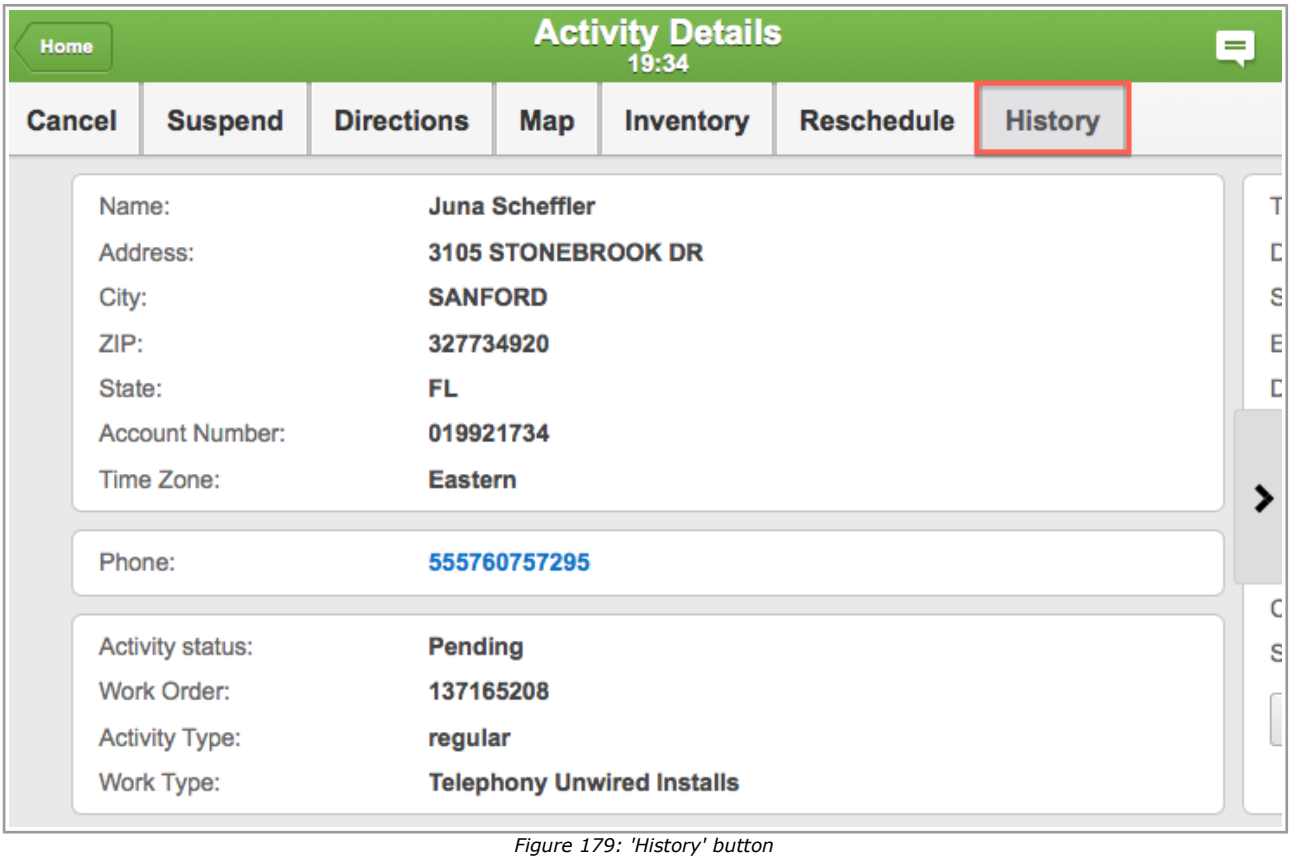


Figure 179: 'History' button

Clicking 'History' opens the 'History' screen which has the same columns containing the same data as the corresponding columns of the 'Activity history' tab in the Manage Application (Figure 180).

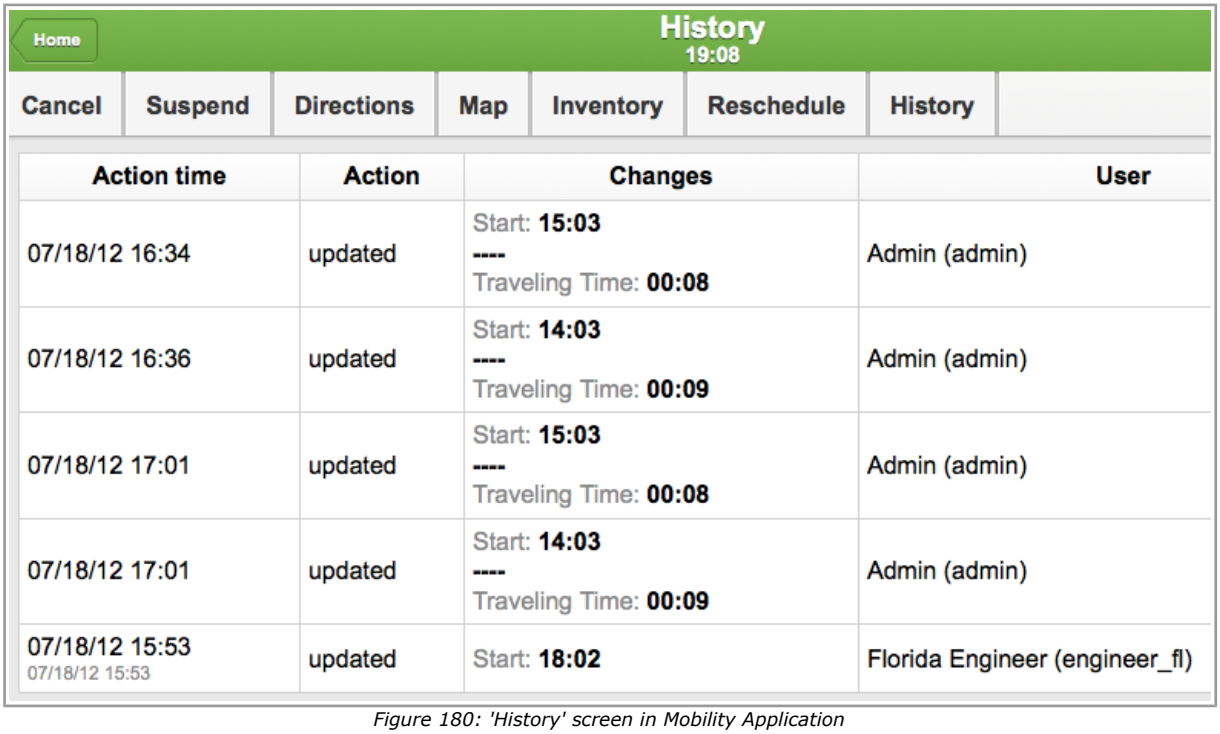


Figure 180: 'History' screen in Mobility Application

Clicking 'Home' returns the user to the previously opened screen.

5.6.6 Display Mode Issues

5.6.6.1 Long Property Names Displayed Correctly

In the previous version a long property name without spaces not fitting its section continued beyond the section borders, rather than being clipped (Figure 181). This behavior was observed in both display modes – Tile and Multi-Screen.

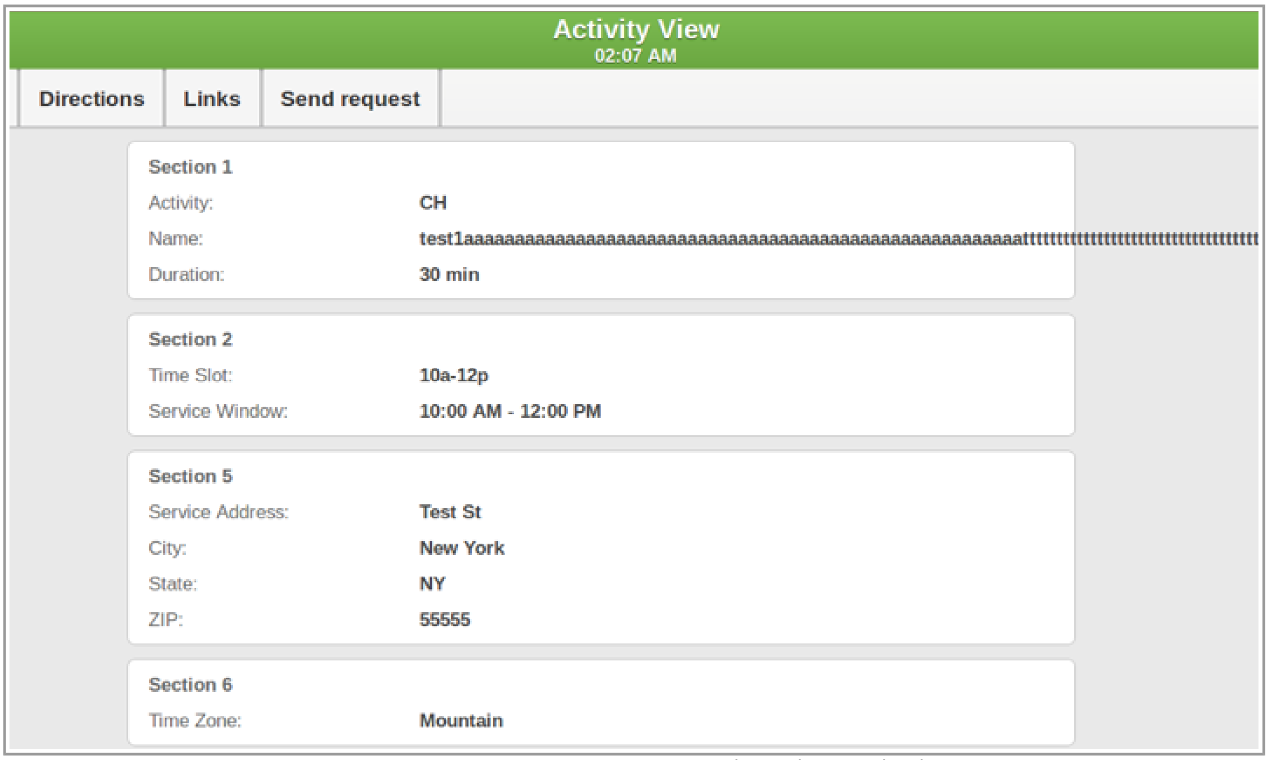


Figure 181: Long property name continuing beyond section borders

In version 4.5.3 long property names are clipped with three dots added to the end (Figure 182). When the name includes spaces, the words are dropped down to the next line and only long words not fitting the screen are clipped.

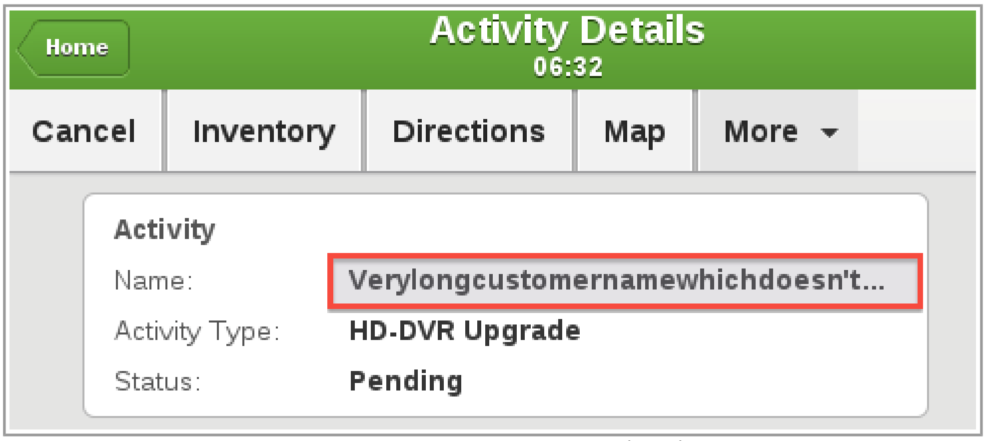


Figure 182: Long property name clipped

5.6.6.2 Display Mode Options Redesign

For the purposes of better usability and interface clarity the selection of display modes introduced in ETAdirect version 4.5.0 has been redesigned.

As of version 4.5.3 the default display mode is the Multi-screen mode.

The 'Display forms mode' combobox with a drop-down list of display mode options (Figure 183) has been replaced with a checkbox named 'Arrange columns to fit screen width' (Figure 184). This checkbox is unchecked by default and, when checked, switches the display mode to the Tile mode.

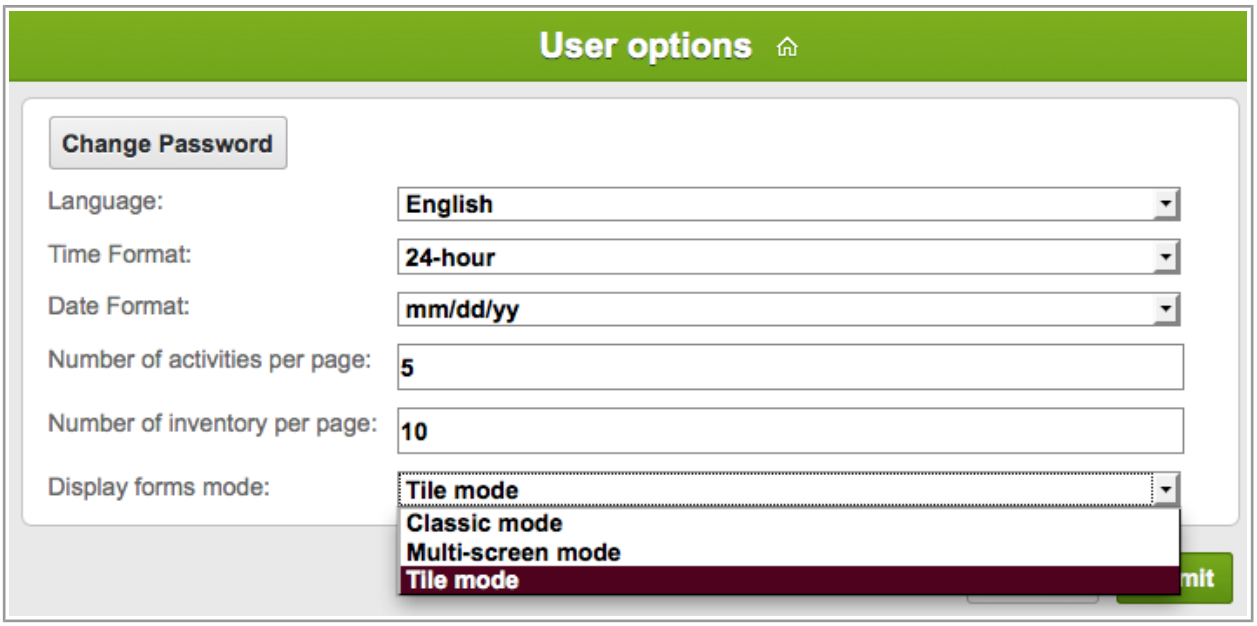


Figure 183: Display mode selection in version 4.5.0

Figure 184: 'Arrange columns to fit screen width' checkbox in version 4.5.3

5.7 DashBoard

5.7.1 'Mean Time to Deliver' Report Shows Two Intervals

The 'Mean time to deliver' report has been changed to show two intervals:

- time from activity creation to assignment to technician
- time from assignment to start

The first interval is calculated on the basis of the 'Time of booking' and 'Time of assignment' properties.

The second interval uses the 'Time of assignment' property and ETA (as the time of activity start).

Now the 'Mean time to deliver' chart shows both values. Its legend has been changed accordingly (Figure 185).

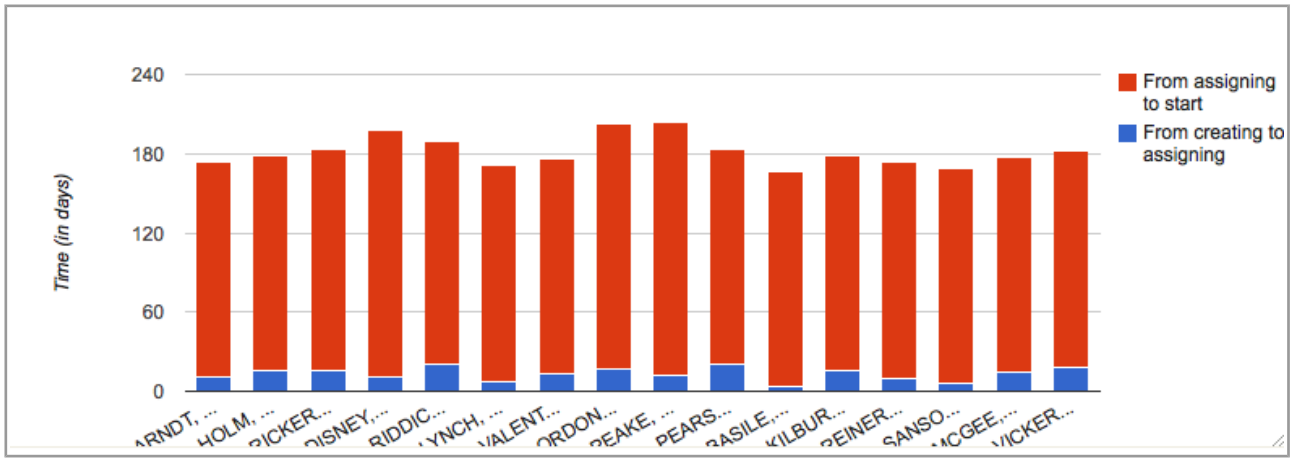


Figure 185: 'Mean time to deliver' chart showing two values

5.8 Reports

5.8.1 'Work Type' Filter Improved

The 'Work Type' filter containing the underscore symbol ("_"), when applied to the Work Order Statistics report, returned no results even when the report data contained the filter value.

The reason for that was escaping of the underscore which was fixed in version 4.5.3.

5.8.2 'All Reports' Screen Usability Improved

When 'All Reports' was selected in the 'Reports' tab of the main menu, the 'Show' action link produced no result for any of the reports in the list.

In version 4.5.3 this issue has been fixed. Clicking 'Show' in the 'All Reports' list opens the respective report.

5.9 Statistics

5.9.1 Default Duration Applied Only to Activities with Undefined Duration

In any activity duration recalculation, the system applied the company default duration to all activities for which the estimated duration was not found. This could lead to less accurate estimations, as for some activities duration was set manually or obtained from external sources.

As of version 4.5.3 the default duration is only applied to activities with undefined duration, and values of other activities duration is not changed to the default value during recalculations.

5.10 Export/Import

5.10.1 Double Clicking 'Validate' Button No Longer Hangs Up Import Process

In the previous version a double-click on the 'Validate' button in the 'Context layout list' disabled the subsequent import process. Clicking 'Import' only displayed an 'Import' window with all time counters showing '0'. The import process would continue indefinitely.

In version 4.5.3 the 'Validate' button is disabled after the first click and no longer locks the system. The context layout list can be validated and imported properly.

6 Changes and Improvements to Version 4.5.4

6.1 4.5.3 to 4.5.4 Changes Overview

Activity assignment method
Changes to on-call functionality
Capacity-based Quota management
Authentication ticket removal or expiration now leads to logout
Login errors logged now
'Add/Edit Work Skill Group' window layout improved
Internet Explorer 7 – appearance of 'Add/Modify technician work zone' window improved
Internet Explorer 7 – activity labels displayed correctly
Internet Explorer 7, Internet Explorer 8 – location hint positioned correctly
Internet Explorer 8 – filter settings improved
Chrome – Activities Management Improved
'Enter' button works correctly in 'Add/Edit activity' screen
Resource work skills editing improved
'Links' tab no longer shows warnings not related to links
Links to past activities now available
Option of adding mass activities to groups available
Details of mass and repeating activities can be viewed/edited
Mass activities no longer added to deactivated routes
'Select technician' action working in 'Send requests' screen
Activity history filters implemented
'Updated' field of 'User' screen contains correct data
'Sunday' can be set as 'Week Start' in 'My Display'
Long date format saved properly
Error message for 'Business Rules' → 'Overnight Work' changed
Resource Tree search improved
Hint of 'Show all reports list' button removed
Placeholders added to Glossary
Icon set changes with theme change
'Submit' button visibility can now be configured
Predefined tabs displayed correctly
Enumeration values with indexes 00, 000, 0000, etc. processed correctly in visibility conditions
Time zone value visibilities improved
Visibilities editing improved
Links between Inventory Properties and Activity Properties improved
Linked properties behavior in 'Add resource' screen improved
Improvement of conditions based on enumeration radio button properties
Visibility tables removed for fields not available for configuration via context layouts
Linked properties made case-insensitive
Display profile import improved

Predefined tabs export/import implemented

Import of linked properties improved

'Add/Edit user' context layout improved

New contexts introduced for 'Print' functions

Multi-language support enhanced

'Enter' button works correctly in 'Capacity categories' screen

Activities recalculation improved for 'Work skill conditions' and 'Capacity categories' screens

Search by numeric values possible in 'Work skill conditions' screen

Work skills with special symbols in name and label saved properly

Message blocking conditions improved by date removal from values of ETA, Delivery Window, Service Window and Time Delivered

Message scenarios can be deleted only when not used elsewhere

Static filters work correctly with values consisting of special characters

Filter conditions improved to handle properties with large number of values

'Work skill conditions' screen and dialog windows redesigned

'OpenId' login policy added

Login policies editing improved

Glossary filter improved

Placeholders spelling improved

Placeholders added to warning messages in 'Statistics Parameters'

'0' duration no longer accepted

Shifts – activities editing functionality improved

Shifts – sorting by column retained after filter application

ReadOnly permission applies properly to 'Center Point Home Zone Support' parameter

'Refresh' permission removed as obsolete

Data import improved

Invalid data ignored for units and deviations

'Routing error reasons' report improved

'PAS responses per resource' permission improved

Custom inventory report implemented

Inventory quantity displayed as integer

Selection of pool to install required inventory from

Internet Explorer 7 – serial number icon positioned correctly

Special symbols escaping added to file names in inventories screen

New placeholders added to distinguish between different inventory quantities

Inventory without 'Model property' can be installed/deinstalled

Serialized inventory with 'Model property' defined can be installed/deinstalled correctly

'Name' and 'Unit of measurement' of inventory type accessible

'Unit of measurement' visibility depends on 'Non-serialized' checkbox

Non-serialized inventory can no longer be exchanged

Required inventory behavior improved

Installation/deinstallation of non-serialized inventory improved
Change of algorithm calculating “Working day” interval start
Text in 'Add/Modify routing plan' screen changed
Hints added to icons in routing plan 'Filters' section
Correct number of routing plans/profiles selected for group actions
Copyright string shown correctly after routing plan/profile search
Different messages displayed for different routing plan actions
Correct Message Displayed upon Group Deletion of non-Assigned Routing Plans
Internet Explorer 7, Internet Explorer 8 – routing plan time limits sorted in ascending order
'Modify routing profile' window button changed
'Routing profiles' screen pagination improved
'Home zone radius' parameter improved after migration
New non-assignment reasons displayed
Time validation for Routing run schedule improved
“Recurrent” Run Changes to Other Values Correctly
'once a day' and 'recurrent' Routing Plans can now be Created
Error messages and notifications disappear after screen reopening
Assignment Parameters Section Displayed Correctly
“Routing by Inventory” Displayed only when Selected
Caption Assignment Parameters Section Displays a Correct Label
Correct Values Displayed in the Database and List of Routing Plans
Routing Plans not in Use can be Deleted
'Dynamic Routing' Option Disabled by Unchecking
Correct Text for Manually Started Plan Confirmation Message
Scrollbar Available in the 'Edit Resource Filter' Window
“Add Routing Plan Filter” Screen Improved
Increased Default Amount of Routing Profiles to be Activated/Deactivated by Group Action
Routing plan run time limit can be defined in seconds
Routing supports minimal and maximal intervals between linked activities
'Center point home zone support' displayed only when enabled
'Filters' section removed from Routing Execution Log
Cell statuses marked correctly
Quota status and close time popups
“User is typing...” notification introduced
New algorithm ensuring message delivery and preventing message loss or duplication
Sound notifications introduced
Message statuses implemented
SmartCollaboration notifications configurable through 'My Display'
Google Chrome, Chromium – SmartCollaboration icon visible
'Reassign activity' and 'Transfer inventory' actions available
Multihints displayed correctly

'Move' dialog window shows correct date
Queue Reorder by Dragging and Dropping Improved
iPad/Surface – scale rule available on screen
Reports with different recurrences logged in the same manner
Recurrence spelling changed
All mandatory parameters marked with asterisks
Internet Explorer 7, Internet Explorer 8 – 'Add Schedule' form editing improved
Alert message for invalid 'Name or ID' value changed
All report formats processed properly
'Statistics of Appointment by Status' report calculated correctly
Values of 'Work Order Statistics' report rounded correctly
Custom report displayed completely
Report parameters validation improved
'Required Inventory Grid' can now be added to context layout
Inventory features can be used as action link conditions
API Profiles import improved
New logging format for display profile validation and import
Action links visibility now conditioned by other properties
Inventory enhancements in the Mobility Application
'Required inventory' grid added
'Inventory Type' and 'Model' parameters in 'Add to Installed/Deinstalled' forms
'Add to Installed' and 'Add to Deinstalled' action links added
Design theme setting from 'User options'
Activities with 'Support of Not-Ordered Activities' disabled can be moved to bucket
Ordered activities in buckets shown in correct color
Started activities shown in correct color in offline mode
Synchronization of Mass/Repeating Activity Updates Improved
'Service Unavailable' message displayed correctly
'Capture Image' functionality improved
Mandatory fields validation in offline mode improved
'Activate Route' action link hidden in offline mode
Overnight mode actions improved
Activity move functionality improved
Signatures for repeating/mass activities displayed
Instance name used instead of company name
Instance name used to get GPS coordinates
Empty values accepted in CSV files
'map' file removed
Inbound API changed to support new link types
Resource preferences handling by Inbound API improved
Inbound API – inventory type label used as key

Inbound API – inventory type validation implemented

API use instance name instead of company name

6.2 Activity Assignment Method

In version 4.5.4 ETAdirect offers the possibility to define the method of activity assignment. It is a fast and simple method of classifying activities on the basis of how they were assigned to resources.
This method helps to determine whether an activity was not routed automatically. This minimizes the number of manual operations. Also, this method is used to find the cases when an automatically routed activity was unassigned/reassigned/reordered by a dispatcher.
The classification is based on the following parameters:

1. routing result
    - assigned – Routing assigned the activity to a technician
    - not assigned (new) – the activity did not exist in the bucket at the time of the previous Routing runs for that schedule date or did not match the routing filters
    - not assigned (excluded) – the activity existed in the bucket during at least one of the previous Routing runs for that schedule date and matched at least one of the filters, but it was rejected/excluded/disqualified
2. first reschedule/move/reorder operation after the automatic assignment
    - moved to another technician
    - moved to bucket
    - made not-scheduled
    - rescheduled to another day
    - reordered ("dispatcher" only)
3. interface (Manage/Mobility/SOAP/Inbound) this "first" operation was performed from
4. user who performed this "first" operation
5. it is required to know if this "first" operation was performed by a dispatcher.

Also, it is necessary to avoid loss of the information when an activity is rescheduled to another day (or made not-scheduled) and then returned back.
The following operations/processes are considered "automatic":

- Routing
- Re-optimization
- activity creation
- custom plugins and scripts that implement a customer specific assignment logic (pre-routing, pre-assignment of activities to technicians on creation, etc.)

To be able to calculate the classification parameters, the system provides the following new activity attributes:

- Auto-routed to resource – the resource this activity was assigned to during the latest Routing run
- Auto-routed to date – the date this activity was scheduled for during the latest Routing run
- first manual reschedule/move/reorder operation performed after an automatic one
    - operation name
    - performed by
    - performed via interface

With the introduction of the new activity attributes, the following rules are applicable to the operations handling:

- Automatic operations set the "Auto-routed to" fields and clear the "First manual operation" ones.
- Manual operations set the "First manual operation" fields if they are empty. There is only one exception. The "reorder" dispatcher's operation can be overwritten by an operation by another dispatcher.

The new attributes are used by the 'Auto-routing results' DashBoard report. The report uses three categories which are defined on the basis of the new activity attributes:

- % of auto routed activities (the activities that were moved by Routing to resources and remain assigned to the same resources)
    - "Auto-routed to date" matches the selected date, and this date is the same date the activity is currently scheduled for
    - "Auto-routed to resource" matches the resource the activity is currently assigned to, and, this resource is a technician (it has the "can execute activities" feature)
    - "First manual operation" is empty or was performed by a technician
- % of manually routed activities (the activities that were moved by Routing but were removed manually afterwards)
    - "Auto-routed to date" matches the selected day
    - "Auto-routed to resource" refers to any technician
    - This activity does not belong to the first category
- % of not routed activities (the activities that were not moved by Routing)
    - The activity is scheduled for the selected date
    - This activity does not belong to the first or second category

6.3 Changes to On-Call Functionality

Initially, on-call functionality was intended to define when a resource could be contacted outside the regular working hours. Previously, resources with on-call calendars were not able to activate their routes and perform activities.

As of version 4.5.4, the system allows to activate a route of a technician that has the 'on-call' calendar only. Most basic activity actions can also be performed within on-call calendars now. Therefore, on-call resources are now able to activate their routes and perform the activities assigned to them. Activity operations are also possible before the route activation.

In version 4.5.4 an on-call resource is shown as 'working' on the Resource Tree, and when activities are assigned to such resource, no warnings are issued.

Following are the differences between regular and on-call calendars:

- Routing does not assign activities to On-Call resources
- The system does not allow to define default activities for On-Call shifts
- There is no 'Points' field for On-Call calendars
- A Repeating or Mass activity (Lunch break, etc.) is not automatically added to On-Call routes
- The "Is working day", "Time from calendar start", "Is working at" custom filter conditions only work for Regular calendars. They do not take into account On-Call calendars
- If the same resource has both a Regular and an On-Call calendar within the same day, the Time View shows only the Regular calendar

- The 'Not activated' trigger is based on the “Regular” calendars only.

6.4 Capacity-Based Quota Management

6.4.1 Overview

As of ETAdirect version 4.5, the Quota Management functionality has been enhanced allowing a more accurate and focused quota calculation as percentage of the capacity available according to the calendar. Specifically, this functionality is intended to:

- support additional levels on which quota can be defined (time slot and day)
- allow to define the quota as percentage of:
    - capacity currently available by calendar
    - quota defined on an upper level
- support automatic adjustment of the quota values when the available capacity is changed
- provide the ability to exclude internal activities from the estimated value of the available capacity
- allow to use historical data to determine the quota percentage
- allow to close quota on multiple levels: day, time slot, capacity category, work zone, and work zone location
- provide flexible configuration to decrease the number of options to be used for a particular company

6.4.2 Additional Levels for Quota Definition

In the previous versions quota could only be defined on the capacity category level. Now two more options are provided – day and time slot.

The **day** quota can be used to:

- restrict the total value of the "Used" capacity for a whole day within the given capacity bucket so that it does not exceed the workforce available for the day
- provide an input for the **time slot** quota when it is defined as percentage of the available capacity
- partially: handle overlapping time slots

The **time slot** quota can be used to:

- restrict the capacity on the time slot level when the sum of quota for the capacity categories within this slot exceeds the available resources in such period of time
- provide an input for the **capacity category** quota when it is defined as percentage of the available capacity
- simplify configuration of capacity buckets where all resources have the same set of skills
- partially: handle small capacity buckets that contain activities belonging to multiple capacity categories

6.4.3 Quota Management Settings

With the enhancement of the Quota functionality, additional Quota-related settings have been added to 'Company Settings' → 'Business Rules' page (Figure 186).

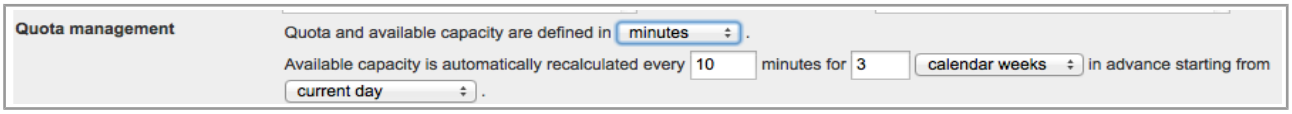


Figure 186: 'Quota management' section of 'Business rules'

As of version 4.5.4, ETAdirect allows setting the unit of measurement for quota and capacity. There are three possible options – hours, man-days and minutes. Internally, all values are calculated in minutes anyway, and are converted to the selected unit when the corresponding value is displayed in the Quota View.

The system can be set up to regularly recalculate the available capacity and quota. The recalculation interval in minutes can be defined in the range of 5 to 1,440. By default, it is set to 10 minutes.

The quota and capacity are recalculated for a predefined future period. The period is defined as the number of days or calendar weeks. The maximum value is 74 days or 12 calendar weeks. The recalculation start day can be selected from among 'current day', 'tomorrow, 'day after tomorrow'.

The 'calendar week' option is processed according to the 'Week starts on' parameter set in the 'Display' screen. If the recalculation period is set to 1 calendar week, the recalculation will be performed for all remaining days of the current week (unless the start day is the week start day) plus all days of the following week. On the contrary, if the recalculation period is set to 7 days, the recalculation will be performed for exactly 7 days.

6.4.4 Quota View Changes

With the introduction of new levels on which Quota can be defined, the Quota View has been changed to provide the ability to select the level (Figure 187).

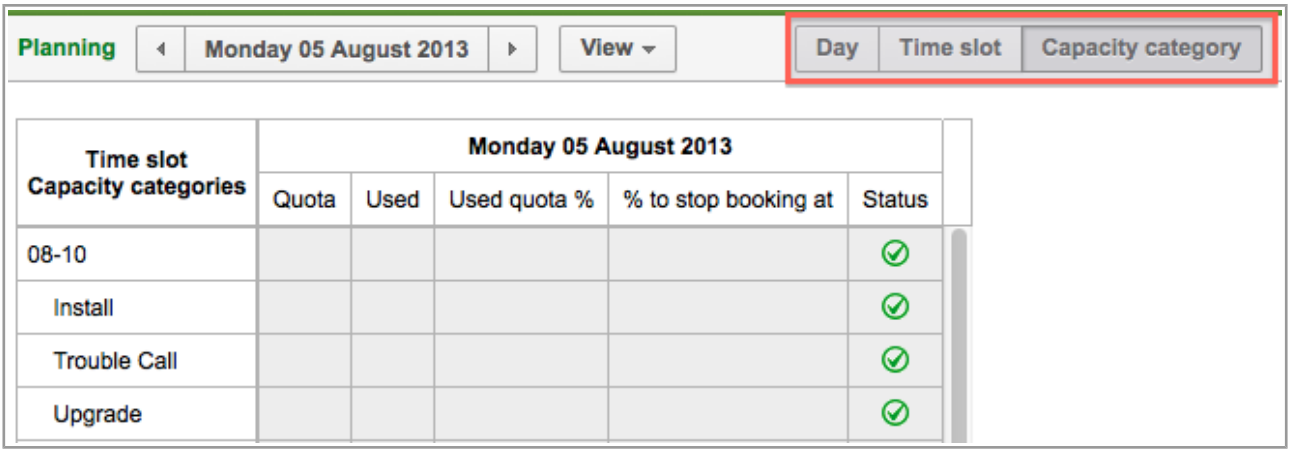


Figure 187: Quota level selections

More options have been added to the Quota View filter to select the columns to be displayed on the screen. The filter now contains the options corresponding to the current parameters used in the Quota Management (Figure 188).

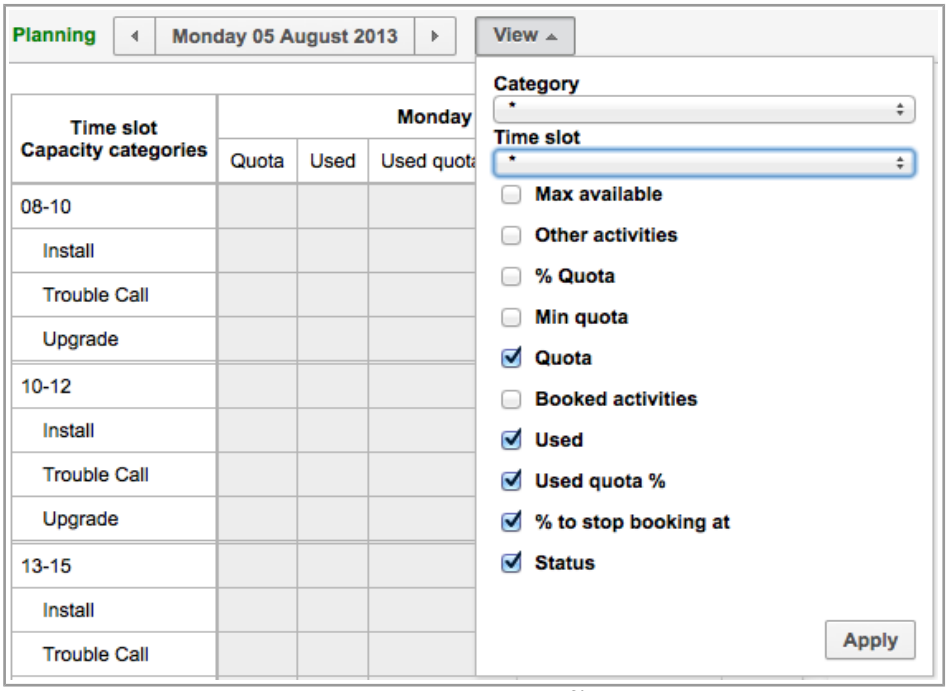


Figure 188: Quota View filter

The filter options allow to display the columns containing the following values:

- Max available – the maximum capacity available by calendar on the selected day, time slot or capacity category
- Other activities – other activities that might affect the capacity
- % Quota – % of the capacity that is available for booking
- Min quota – the minimum number of minutes to be allocated for booking of the activities belonging to the selected time slot (only on time slot and capacity category level)
- Quota – the quota on activities booking within the selected day, time slot or capacity category
- Booked activities – the number of booked activities
- Used – duration of all activities booked for the selected day, time slot or capacity category
- Used quota % – % of the quota used by the booked activities
- % to stop booking at – % of the used quota at which activities booking is to be stopped
- Status – open or closed

6.5 Security

6.5.1 Authentication Ticket Removal or Expiration Now Leads to Logout

Previously, when the authentication ticket expired or was removed, the Manage Application responded with a blank screen with a 'Loading...' message displayed indefinitely.

Now, the authentication ticket removal or expiration causes a logout form the system and redirect to the login screen, which is the correct system behavior.

6.5.2 Login Errors Logged Now

Previously, when a user was denied access to the ETAdirect application and redirected to the Login Portal, such events were not logged.

Now in such cases a "Login error: inaccessible interface" record is written to the log.

6.6 Manage Application

6.6.1 'Add/Edit Work Skill Group' Window Layout Improved

When ETAdirect was used in the Internet Explorer 7 browser, the layout of the 'Add/Edit Work Skill Group' window was incorrect – the 'Close' button was shifted to the right which broke the symmetry of the window (Figure 189).

Figure 189: Incorrect layout of 'Add/Edit work skill group' window

This issue has been addressed in version 4.5.4, and now the 'Add/Edit Work Skill Group' window looks correct in Internet Explorer 7.

6.6.2 Internet Explorer 7 – Appearance of 'Add/Modify Technician Work Zone' Window Improved

In the previous version, when ETAdirect was used in the Internet Explorer 7 browser, the control panel of the 'Add/Modify Technician Work Zone' window looked too wide (Figure 190).

Figure 190: Incorrect width of control panel

This issue has been resolved in version 4.5.4 where the control panel has the correct width (Figure 191).

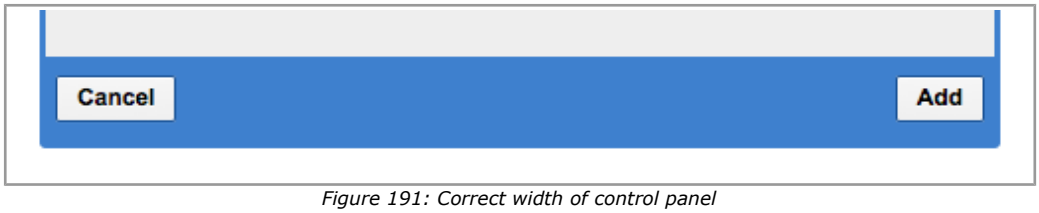


Figure 191: Correct width of control panel

6.6.3 Internet Explorer 7 – Activity Labels Displayed Correctly

In the previous version, when an activity label did not fit the activity bar length, it was not displayed at all (Figure 192).

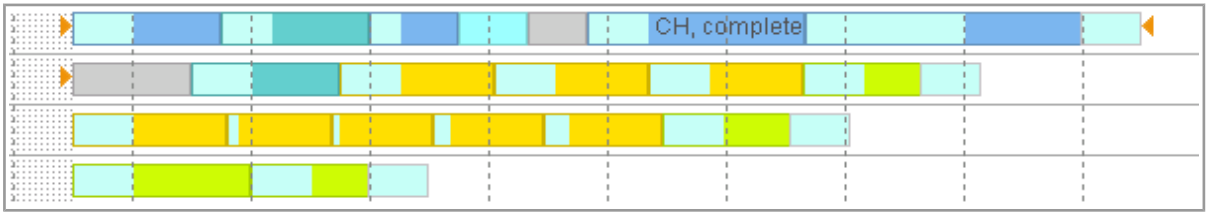


Figure 192: Activity labels missing in Time View

The activity labels have been adjusted, and now they are properly shown in the 'Activities Time/List View' in Internet Explorer 7.

6.6.4 Internet Explorer 7, Internet Explorer 8 – Location Hint Positioned Correctly

In the Internet Explorer 7 and 8, the 'Location' hint was positioned at the opposite side of the screen (Figure 193).

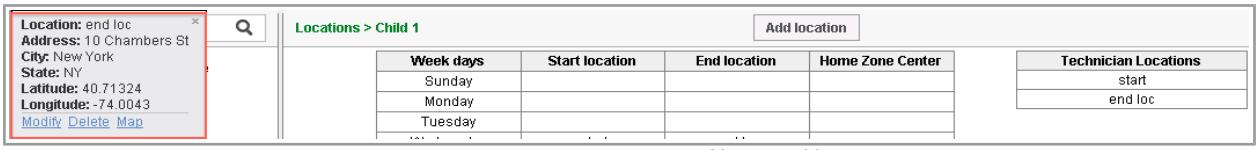


Figure 193: Incorrect position of 'Location' hint

In version 4.5.4 the 'Location' hint is positioned in the correct place – immediately under the respective location (Figure 194).

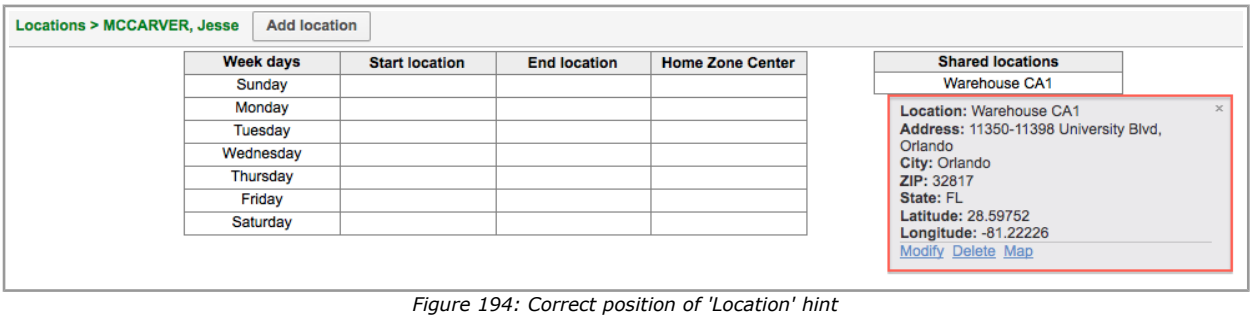


Figure 194: Correct position of 'Location' hint

6.6.5 Internet Explorer 8 – Filter Settings Improved

In Internet Explorer 8 users were unable to set the filter value in 'Company Settings' → 'Filters'. After one condition was added to a filter, for the subsequent condition the 'Value' field was disabled.

This issue has been resolved, and filters can be added and edited properly in Internet Explorer 8.

6.6.6 Chrome – Activities Management Improved

In the Chrome browser all activity actions became unavailable after a work zone was added to a resource. When the user returned to the Activities List, they were unable to add a new activity, move an existing activity to a different resource, etc.

This issue has been resolved in version 4.5.4. Now Chrome users can manage activities immediately after a new work zone added to a resource.

6.6.7 'Enter' Button Works Correctly in 'Add/Edit Activity' Screen

In the previous versions when the 'Enter' button was pressed to submit 'Add/Edit activity' form the screen closed without adding the activity or saving the changes. Clicking 'OK' in the same screen saved the activity correctly.

In version 4.5.4 the 'Enter' button produces the correct result – the form is validated and saved properly.

6.6.8 Resource Work Skills Editing Improved

In the previous version a work skill added to a resource could not be removed immediately afterwards. The system responded with the 'Settings were successfully updated' message, but when the user clicked 'OK' to save the 'Technician/Bucket Info', the work skill was still visible (Figure 195-196).

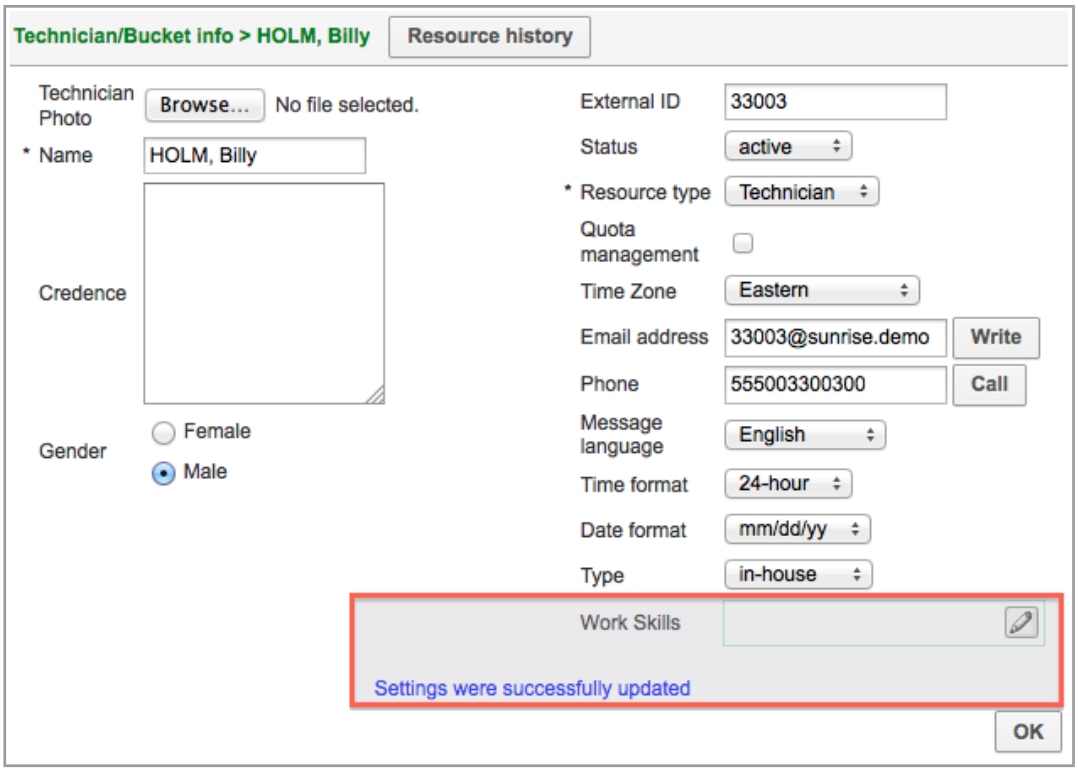


Figure 195: Work skills removed and saved

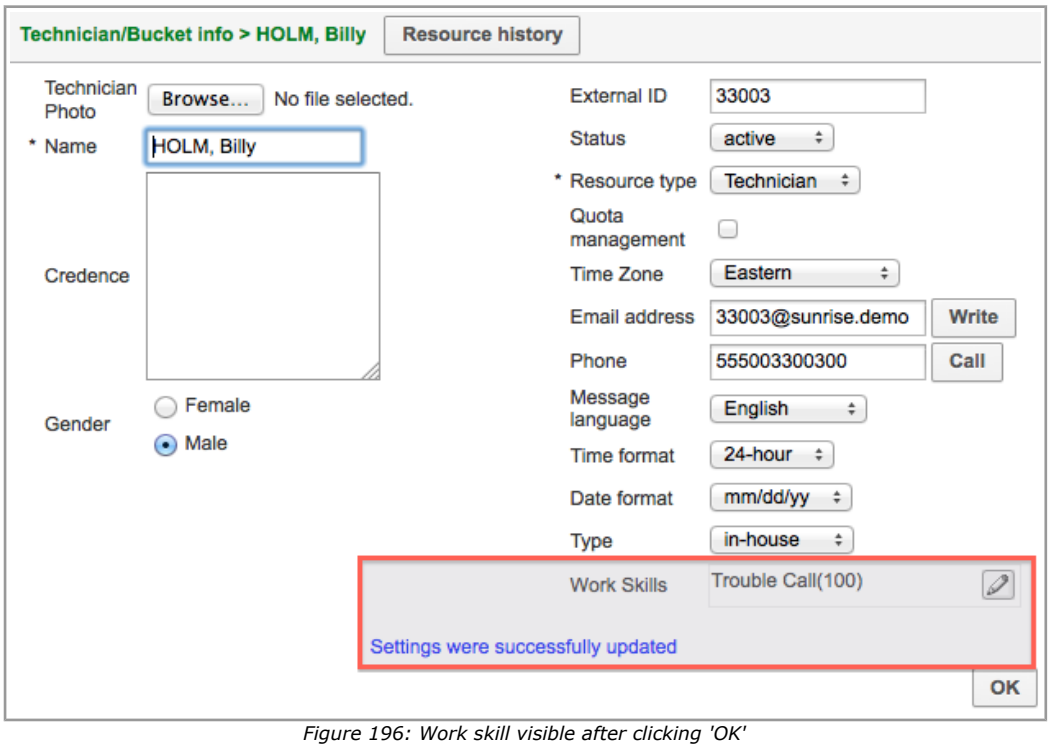


Figure 196: Work skill visible after clicking 'OK'

This issue has been resolved, and now resource work skills can be added and deleted properly.

6.6.9 'Links' Tab No Longer Shows Warnings Not Related to Links

The 'Links' tab of 'Activity details' showed various warnings including those not related to activity links. If an activity having no links at all was violating its service window, the warning was displayed in the 'Links' tab (Figure 197).

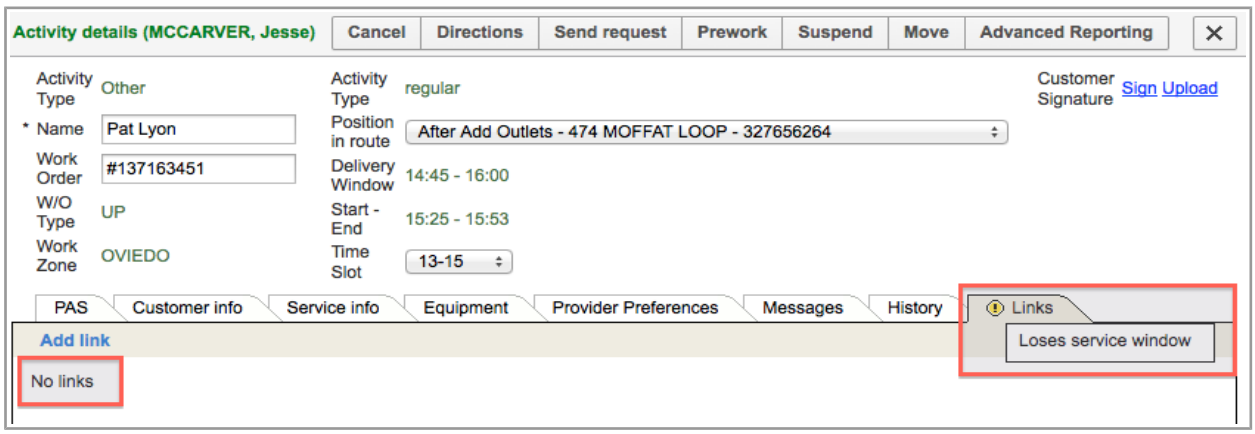


Figure 197: 'Links' tab displaying links-unrelated warnings

In version 4.5.4 this issue has been resolved, and now the 'Links' tab displays only warnings related to links. Other warnings are displayed in the resource hint.

6.6.10 Links to Past Activities Now Available

Sometimes it may be necessary to link a past activity to a today's or future activity. For that purpose, as of ETAdirect version 4.5.4 the 'Links' tab of past activities has the 'Add link' button which allows linking

past activities manually. This option is available only for companies with the 'Overnight' functionality enabled.

6.6.11 Option of Adding Mass Activities to Groups Available

When mass activities exist in the system, the hint of a resource group in the Resources Tree now has the 'Add activity' link which allows adding mass activities to groups (Figure 198). This link allows adding only mass activities (Figure 199).

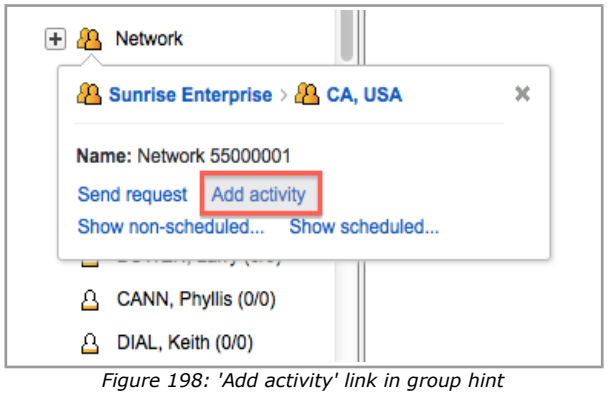


Figure 198: 'Add activity' link in group hint

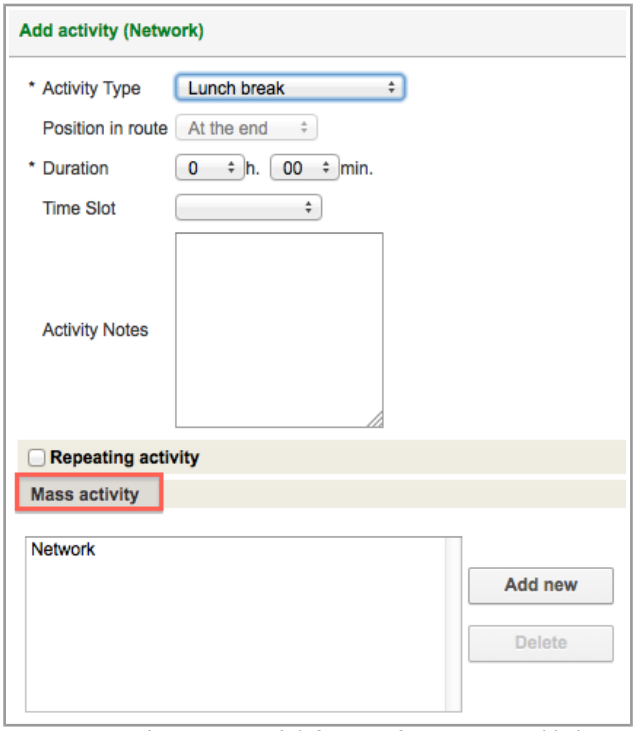


Figure 199: 'Mass activity' definition of any activity added to group

Activities added by means of the 'Add activity' link in the group hint are added to all child resources of such group.

6.6.12 Details of Mass and Repeating Activities Can Be Viewed/Edited

In the previous versions no mass of repeating activities could be viewed or edited after creation if the resource's queue was not activated. The system responded with 'Error occurred: Non-existent activity'

error message (Figure 200).

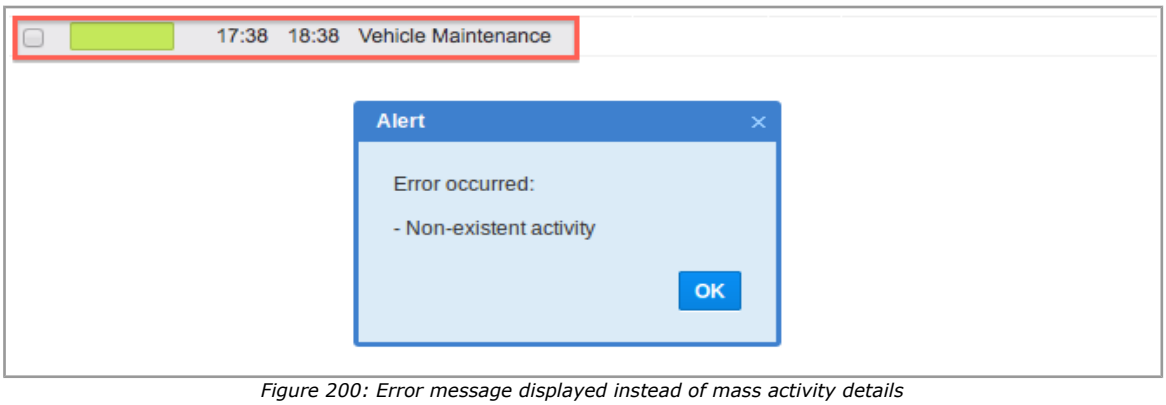


Figure 200: Error message displayed instead of mass activity details

This issue has been resolved in version 4.5.4. Now mass and repeating activities can be viewed and/or edited in not-activated queues.

6.6.13 Mass Activities No Longer Added to Deactivated Routes

In the previous version mass activities added to a group containing resources with deactivated routes were also added to such resource's routes.

This issue has been fixed, and now mass activities are no longer added to deactivated routes.

6.6.14 'Select Technician' Action Working in 'Send Requests' Screen

When the 'Select technician' action was used for a bucket in the 'Send requests' screen with the 'Apply hierarchically' option set for the bucket, the system selected the bucket rather than the individual technician defined.

In version 4.5.4 the 'Select technician' action link works properly, and the Resource Tree focuses on the selected resource.

6.6.15 Activity History Filters Implemented

As of version 4.5.4 the Activity History usability has been increased by adding filters allowing to search for the necessary entries in each of the 4 columns of the 'Activity History' tab (Figure 201).

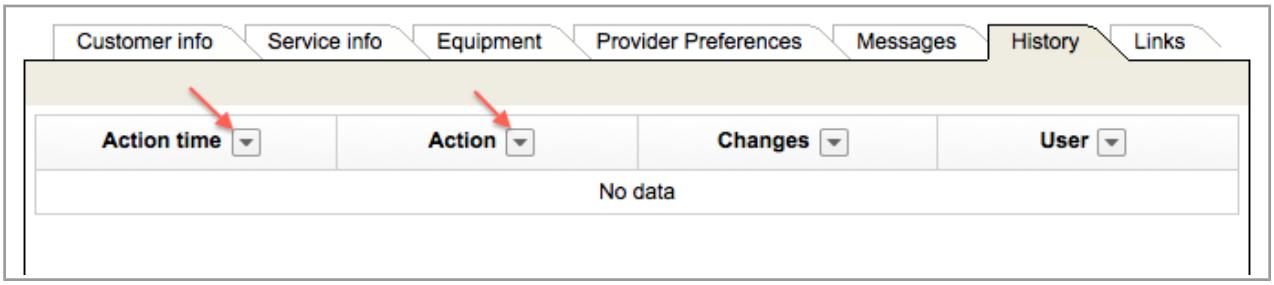


Figure 201: Filters added to 'Activity History' columns

The 'Action time' filter (Figure 202) allows selecting the period for which the historical data should be displayed. The possible options are:

- Last 4 hours
- Last 8 hours
- Last day

- Last 2 days

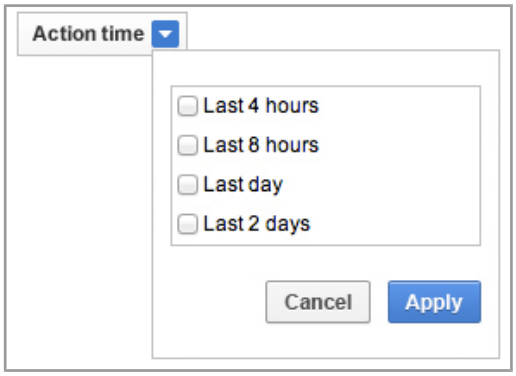


Figure 202: 'Action time' filter

The 'Action' filter (Figure 203) allows selecting the activity actions to be displayed. The list of filter values includes all actions which can be found in the history of the selected activity.

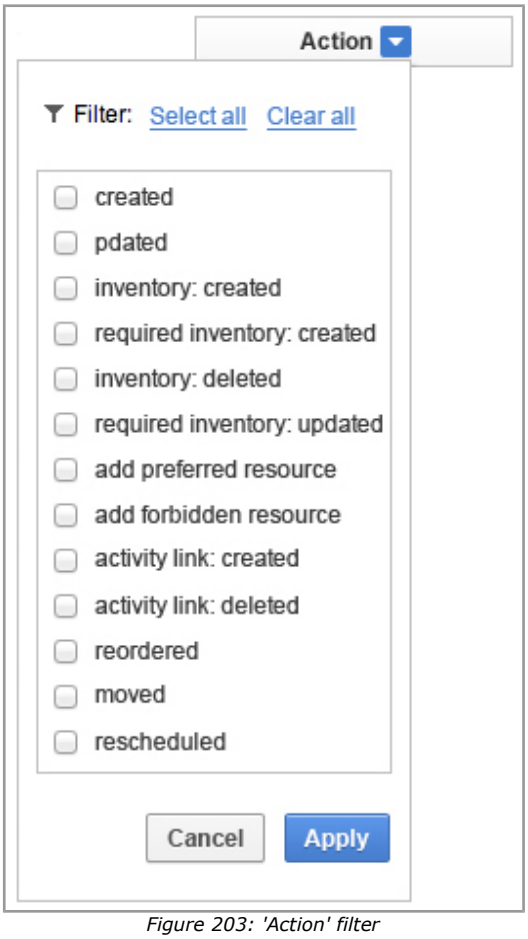


Figure 203: 'Action' filter

The 'Changes' filter (Figure 204) is a case-insensitive free-text search scanning all text values in the 'Changes' column. Any matching values are shown in bold type.

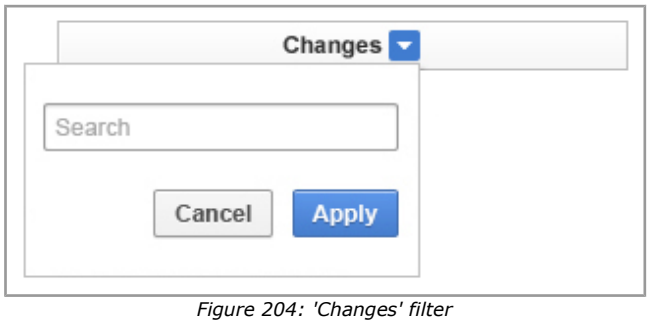


Figure 204: 'Changes' filter

The 'User' filter (Figure 205) allows selecting the actions performed by a certain user. The list of filter values includes all users which can be found in the history of the selected activity.

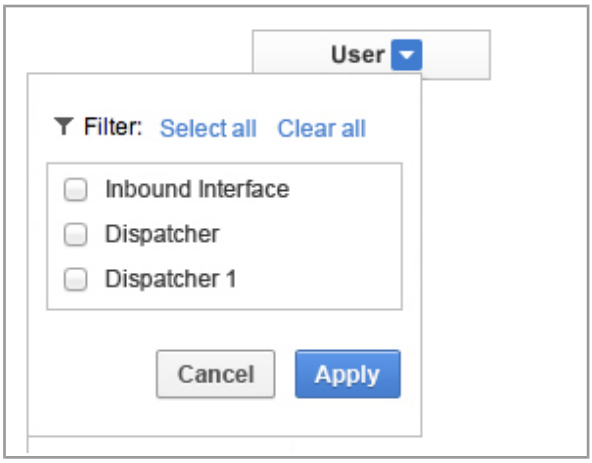


Figure 205: 'User' filter

If the activity history has already been filtered by other filter(s), the subsequent filtering will only show the entries visible with all filters applied.

6.6.16 'Updated' Field of 'User' Screen Contains Correct Data

The 'Updated' field in the 'User' screen showing the date and time of the last user data update did not change its value when 'Profile' and 'Profiles for assignment' fields were changed for the user.
In version 4.5.4 the procedure of logging user profile or profile for assignment changes has been improved, so that such changes are now visible in the 'Updated' field.

6.6.17 'Sunday' Can Be Set as 'Week Start' in 'My Display'

Before, when 'Sunday' was selected in the 'Week start' field of 'My Display', such settings were not saved. When 'My Display' was accessed next time, the 'Week start' field showed 'Use company settings' instead of Sunday.
In version 4.5.4 the necessary changes have been made, and 'Sunday' can be set and successfully saved as the week start day.

6.6.18 Long Date Format Saved Properly

When the long date format was changed in the 'My display' screen from 'weekday, month day, year' to 'weekday day month year', the system actually continued to display the date in the 'weekday, month day,

year' format. No user changes were applied (Figure 206-207).

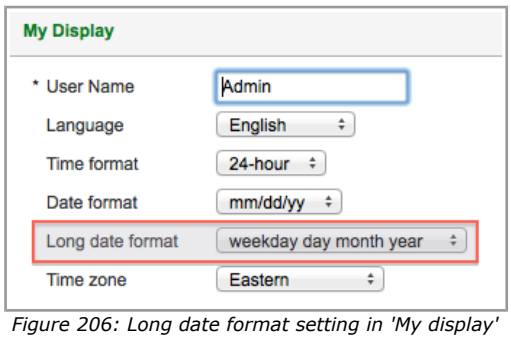


Figure 206: Long date format setting in 'My display'

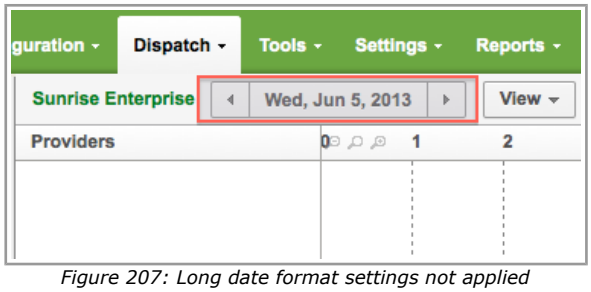


Figure 207: Long date format settings not applied

This issue has been addressed in version 4.5.4. Now the dale settings are saved and applied properly which gives the system more flexibility and user-friendliness (Figure 208).

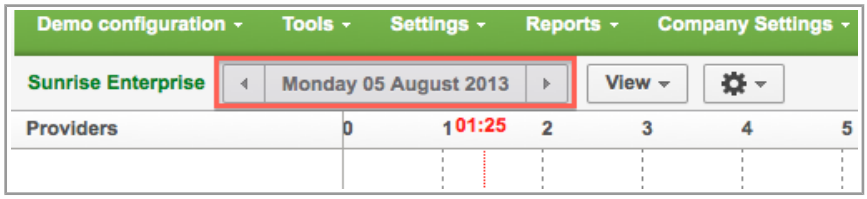


Figure 208: Long date format settings applied

6.6.19 Error Message for 'Business Rules' → 'Overnight Work' Changed

By design, a company can set overtime to 0 to 24 hours depending on its business situation. However, when a wrong number was entered in the 'hours' field for overtime, the system responded with a "Working time since midnight should be between 0 and 23" error message (Figure 209).

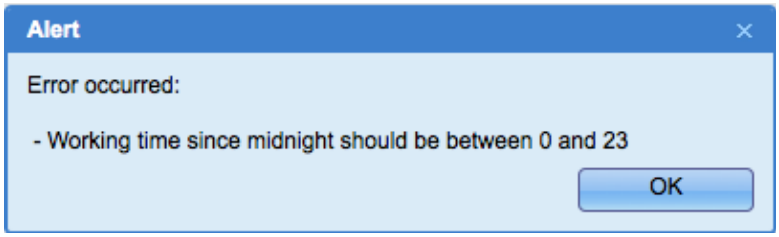


Figure 209: Incorrect error message for overnight

As of version 4.5.4 the error message has been changed to "Working time since midnight should be between 0 and 24" which carries the correct meaning of overtime work (Figure 210).

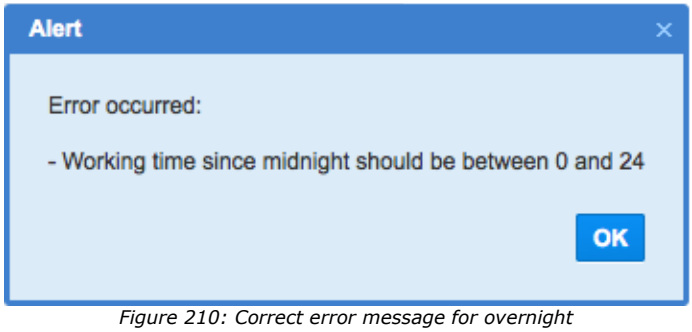


Figure 210: Correct error message for overnight

6.6.20 Resource Tree Search Improved

If the search key was cleared after the found resource was highlighted in the Resource Tree, the Resource Tree completely collapsed instead of showing the expanded branch till the resource found by the search. The related logic has been adjusted, so that the selected resource remains highlighted and the branch leading to such resource remains expanded.

6.6.21 Hint of 'Show All Reports List' Button Removed

Previously, the 'Show all reports list' button in the 'Reports' screen had a 'Close' hint which appeared when mouse was hovered over the button. This hint did not match the actual action and was, therefore, misleading.

In version 4.5.4 the hint has been removed.

6.6.22 Placeholders Added to Glossary

In the previous versions some sub-menus didn't have placeholders for translation on the corresponding forms.

As of version 4.5.4 placeholders have been added to:

- Capacity categories
- Work skill conditions
- Work skill groups
- Work skills
- "Apply" button

6.6.23 Icon Set Changes with Theme Change

The icon set used in the Manage Application to mark different resources and their statuses now changes with the theme change to the one with bright or dark background. The icons change so that they are clearly visible against the corresponding background.

6.7 Company Settings

6.7.1 'Submit' Button Visibility Can Now Be Configured

As of version 4.5.4 the visibility of 'Submit' buttons in various forms can be set in the same manner as other fields in the form. For that purpose the 'Buttons' group has been added to context layouts (Figure 211). Now the 'Submit' button can be enabled or disabled depending on the values of other properties by means of the Linked Properties functionality.

When the 'Submit' button is set to ReadOnly (disabled), the form cannot be submitted by pressing 'Enter' on the keyboard, either. Visibilities can be set for buttons both in the Manage and Mobility Applications.

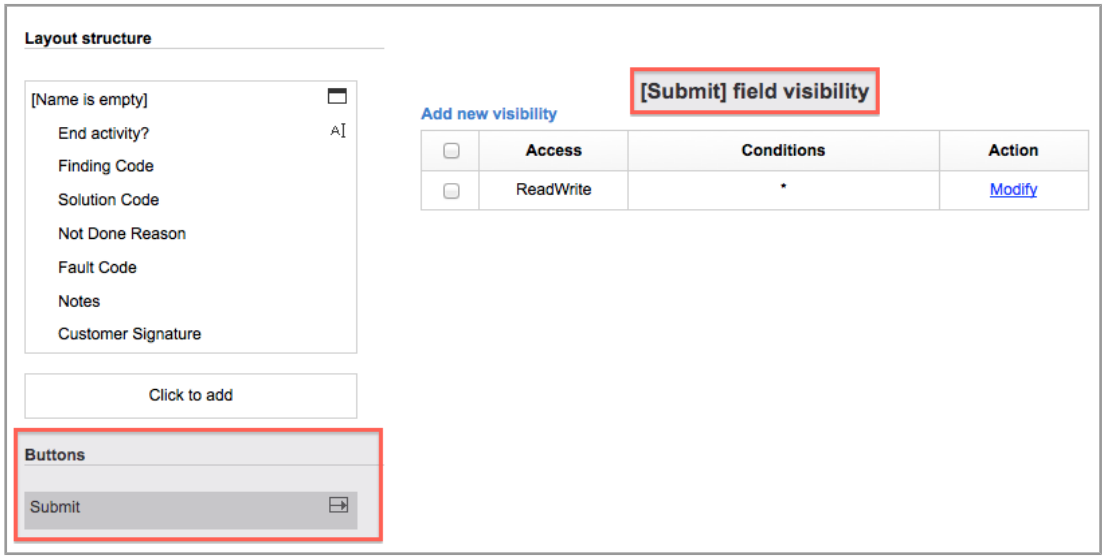


Figure 211: 'Submit' button visibility configuration

6.7.2 Predefined Tabs Displayed Correctly

In the previous version, when all Predefined Tabs were added, not all of them were shown on the 'Activity details' screen. The 'Inventory' and 'Preferred Resources' tabs were not shown at all while the 'Messages' tab was only shown when it had the ReadWrite permission. When the permission was set to ReadOnly, the 'Messages' tab was not shown.

The tabs management in the context layout has been improved, and as of version 4.5.4 all predefined tabs are visible when added to the context layout.

6.7.3 Enumeration Values with Indexes 00, 000, 0000, etc. Processed Correctly in Visibility Conditions

When the value visibilities of one enumeration property were set depending on the values of another property, the values with indexes 00, 000, 0000 and such were always visible regardless of the visibility conditions set for them.

A check of selected values, option values and condition values has been added, and now the values of enumeration properties are visible or hidden according to the visibility conditions set for them.

6.7.4 Time Zone Value Visibilities Improved

The list of values available for selection for the 'Time Zone' property should be similar to the list of time zones set for the company in 'Company Settings' → 'Display' (Figure 212). However, the list showed all time zones available in the system including those which were not set for the company (Figure 213).

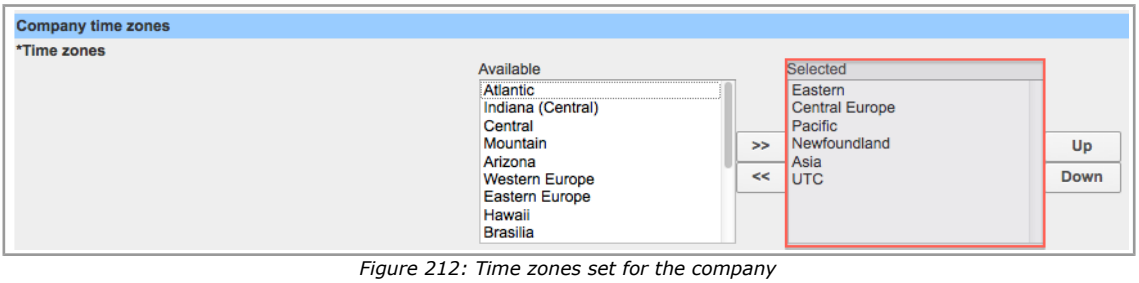


Figure 212: Time zones set for the company

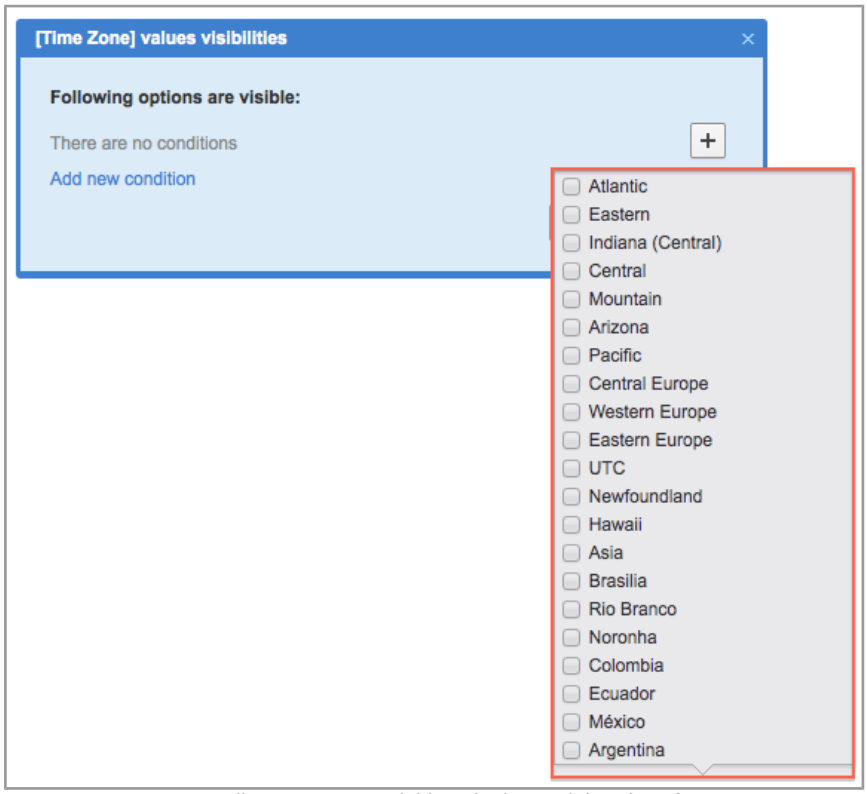


Figure 213: All time zones available in 'Value visibilities' configuration

The new version of ETAdirect shows only the selected time zones as values of the 'Time zone field. The list corresponds to the list of time zones defined in 'Company Settings' → 'Display' (Figure 214).

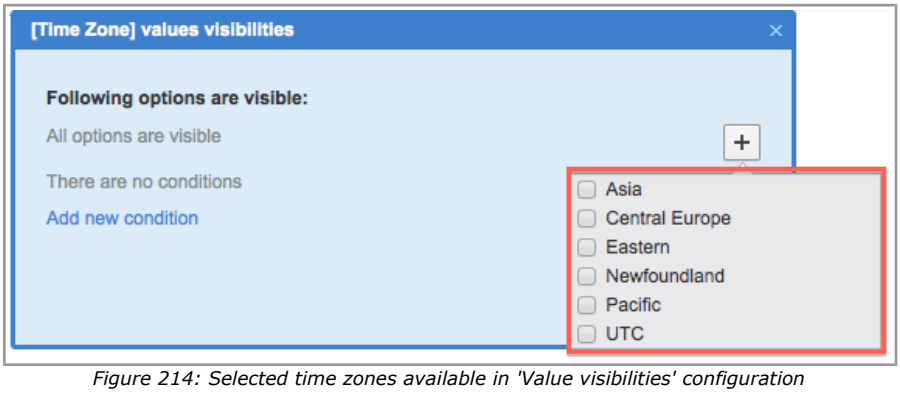


Figure 214: Selected time zones available in 'Value visibilities' configuration

6.7.5 Visibilities Editing Improved

When two visibilities (a default ('*') visibility and a visibility with conditions) existed for the same item, any editing of the visibility with conditions resulted in the default visibility deletion. When the visibility with conditions was saved, it remained the only one displayed in the 'Visibilities' table.

The necessary check has been added, and now the default visibility remains after the other visibility is edited. It is deleted only when it has the same conditions as the other one.

6.7.6 Links between Inventory Properties and Activity Properties Improved

In the previous versions inventory properties linked to the values of activity properties did not in fact take into account such links. The inventory property was not visible when it should have been visible according to the visibility settings.

This issue has been addressed in version 4.5.4, and linked properties behave correctly now.

6.7.7 Linked Properties Behavior in 'Add Resource' Screen Improved

- linked properties functionality did not work for the 'Add resource' screen. The only properties affected by the visibility conditions were system fields. All other properties were not shown according to the conditions.

  The check of condition properties list has been changed and now the properties are visible or hidden according to their visibility settings.
- when the 'External ID' property of the 'Add resource' screen was linked to another property, its value was replaced with the parent's External ID. When there was no parent's External ID, the property remained empty.

  In version 4.5.4 the 'External ID' value is taken from the appropriate form and is, therefore, the correct value.

6.7.8 Improvement of Conditions Based on Enumeration Radio Button Properties

When the visibility of a property was conditioned by the value of an enumeration property represented as radio buttons, such link was not applied immediately. The user had to close the screen and reopen it for the linked properties to work.

This issue has been addressed in version 4.5.4. Now the values of radio buttons affect the visibilities of linked properties immediately.

6.7.9 Visibility Tables Removed for Fields Not Available for Configuration via Context Layouts

Certain fields in the system cannot be configured via context layouts due to the internal server structure realization. Some of these fields can be configured at the company level. Therefore, for the following fields the visibility tables have been removed from the context layout structure screen:

Activity

- Account Number (customer_number)
- Time Zone (c_zid)
- Message language (clanguage)

Resource

- Time format (ptime_fid)
- Date format (pdate_fid)
- Routing profile (p_rprid)
- Message language (planguage)

User

- Time format (sutime_fid)

- Date format (sudate_fid)
- Long date format (sulong_date_fid)
- Time zone (su_zid)
- Login Policy (login_policy_id)
- Display profile (display_profile_id)
- API profile (api_profile_id)
- Main resource (resource in Telemetry and Smart Collaboration) (main_resource_id)
- Language (ulanguage)

6.7.10 Linked Properties Made Case-Insensitive

As of version 4.5.4 the linked properties are case-insensitive both in Manage and Mobility Applications. If the visibility of one property is conditioned by the value of another property, such value can be entered in upper case or lower case with no effect on the linked properties functionality.

6.7.11 Display Profile Import Improved

- In the previous version the 'User name' field was missing from the 'Add/Edit user' screen after the display profile was imported from an .xml file. The 'User name' field appeared on the screen only after it was deleted from the 'Add/Edit user' context layout and then added again.
  The procedure of property/field identification has been adjusted so that fields are imported and exported correctly.
- If a context layout was imported to the context used from another display profile, the import action did not remove the changes made by copying the layout from another display profile. The resulting layout had duplicating entities, too.
  After the necessary changers the layout existing for the current display profile is cleared (all items are removed). If a layout was shared before import, it is shared after the import and all changes are applied to all linked profiles.

6.7.12 Predefined Tabs Export/Import Implemented

As of version 4.5.4 the display profile export/import functionality supports export/import of predefined tabs together with their visibility settings.

6.7.13 Import of Linked Properties Improved

When a context layout containing various linked properties was imported, some of value and visibility conditions set for such linked properties were lost. When no values or visibilities were set, the imported context layout had '*' instead.

The logic of import file validation has been changed, and now the linked properties are imported correctly with no losses of conditions.

6.7.14 'Add/Edit User' Context Layout Improved

When a group (section or tab) was added to the 'Add/Edit user' context layout, no new users could be added. When 'Add new' was clicked in the 'Users' screen, the system responded with a "The system is misconfigured. You do not have enough rights to create a user." message. No new user was created.

The check for the required fields of the display profile has been changed which resolved this issue. Users can be created properly.

6.7.15 New Contexts Introduced for 'Print' Functions

In order to achieve a better usability and clearer control of ETAdirect printing functions, the following changes have been implemented as of version 4.5.4:

- the 'Visible list columns' context which used to control the 'Print' action of the List View now controls only the List View layout
- the 'Print route' context controls the 'Print Route' report under 'Reports'. The 'Print route' screen always shows the following columns regardless of the context layout settings:
  - Start (ETA)
  - Activity Type
  - Work Order
  - Service Window
  - Account Number
  - Name
  - Address
  - ZIP
  - Phone

  Additionally, the 'Print route' screen shows the properties configured in the 'Print route' context in the 'Properties' subsection (Figure 215).

Print Route > BLANCHARD, Todd | Wed, Jul 31, 2013 | Print | Export

Start	Activity Type	Work Order	Service Window	Account Number	Name	Address	ZIP	Phone
14:15	Telephony Seasonal	#137163490	13 - 15	019921925	Ollie Hemenover	2808 SUNLAKE LOOP 212 LAKE MARY FL	327462481	555760759013
	Inventory: SABDJSTJM; 0005844452; 402120207637							
15:06	Multi-type Seasonal	#137163489	13 - 15	019921910	Stephanie Fulcher	908 W CHARING CROSS CIR LAKE MARY FL	327466426	555760759014
	Inventory: HRS032170; Z004168169; 0002947422; SABKLZDSH							
16:00	HSD / High Speed Data install	#137163488	13 - 15	019942928	Troyanne Billingsley	1965 DEERVIEW PL LONGWOOD FL	327504580	555760759015
	Inventory: SABGHRLBM; HRS108479							
16:41	Video T/C	#137163487	15 - 17	019902749	Quinton Towery	1810 LAKESHORE CIR LONGWOOD FL	327504520	555760759016
	Inventory: PKBBBNXNN; 0004437982; SABKLHJTL; 502050500820							
17:30	Video T/C	#137163486	15 - 17	019943758	Mistey Mclain	1121 REAMS ST LONGWOOD FL	327503217	555760759017
	Inventory: 0005179112; SABHVFVFD							

Figure 215: 'Print route' screen

- the 'Activity fields for print' context controls the 'Print' action of the List View (Figure 216).

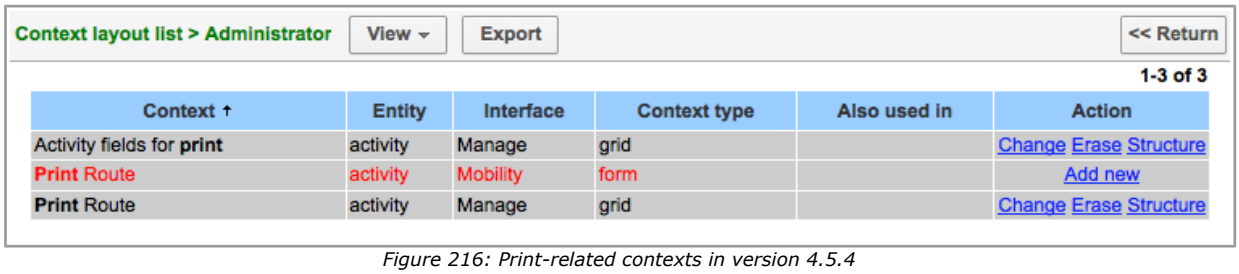


Figure 216: Print-related contexts in version 4.5.4

6.7.16 Multi-Language Support Enhanced

As of version 4.5.4 the following text items have been added as placeholders which allows their translation into languages other than English:

- 'Capacity Categories' screen name
- 'Work skills' screen name and the 'Modify' action link
- 'Sharing of the skill in the team' field name in the 'Add new work skill window
- 'Work skills conditions' screen name, the 'Modify' action link and the 'Delete' group action link
- 'Edit work skills', 'Edit capacity categories', 'Edit time slots' buttons of the 'Technician/Bucket info' screen
- Search result list elements in the 'Search activity' window
- Captions of 'Add/Edit login policy' screen
- 'Modify' button in the 'Filters' screen
- 'Apply' button in the 'Add/modify work calendar/schedule' popup in the Daily screen
- Long custom text wrap to the next line in 'Add repeating calendar' section
- 'Modify' link in the 'Link templates' screen
- Plugin types in the 'Plugin details' tab of the 'Edit action link' window of the 'Action management' screen
- 'Activity statuses' in the drop-down list of the 'Change color' window
- 'from current display profile', 'from another display profile' text in the 'Copy layout' field of the 'Edit layout for context...' window
- 'Export layouts' window
- 'as' word in the 'Provider Preferences' tab of the 'Activity details screen
- confirmation button, caption and error message in the 'Clone routing profile' window
- confirmation button, caption and error message in the 'Add routing profile' window
- 'Assignment cost' and headers of columns in the 'Assignment cost' table
- 'Settings' and 'Resources' action links in the 'Filters' section of the 'Routing plan
- 'Close' button in the 'Filter parameters' window
- error messages in the 'Routing execution log' table
- 'Routing plan' settings buttons adjusted to accommodate long translations
- 'Add routing profile' button and 'Routing Profiles' screen name
- 'Quota management' section of the 'Technician/Bucket info' screen
- 'Quota management' section name in the 'Business rules' screen

Therefore, these text items can now be translated which gives full translation of the respective screens

into languages other than English.

6.7.17 'Enter' Button Works Correctly in 'Capacity Categories' Screen

When the 'Enter' button was pressed to confirm capacity categories deletion or deactivation in the 'Capacity Categories' screen, no action was performed. The confirmation window remained on the screen and no capacity categories were deleted or deactivated.

This issue has been resolved in version 4.5.4, and now the confirmation can be submitted by pressing the 'Enter' button as well as by clicking 'OK'.

6.7.18 Activities Recalculation Improved for 'Work Skill Conditions' and 'Capacity Categories' Screens

In the previous versions clicking 'Recalculate activities' in the 'Work Skill Conditions' and 'Capacity Categories' screens caused the screen to freeze and errors to be written to the log file.

The activities recalculation has been improved, and now its works with no errors or screen blocks.

6.7.19 Search by Numeric Values Possible in 'Work Skill Conditions' Screen

In the previous versions search by numeric values did not return work skill condition ID's which resulted in incomplete results (Figure 217).

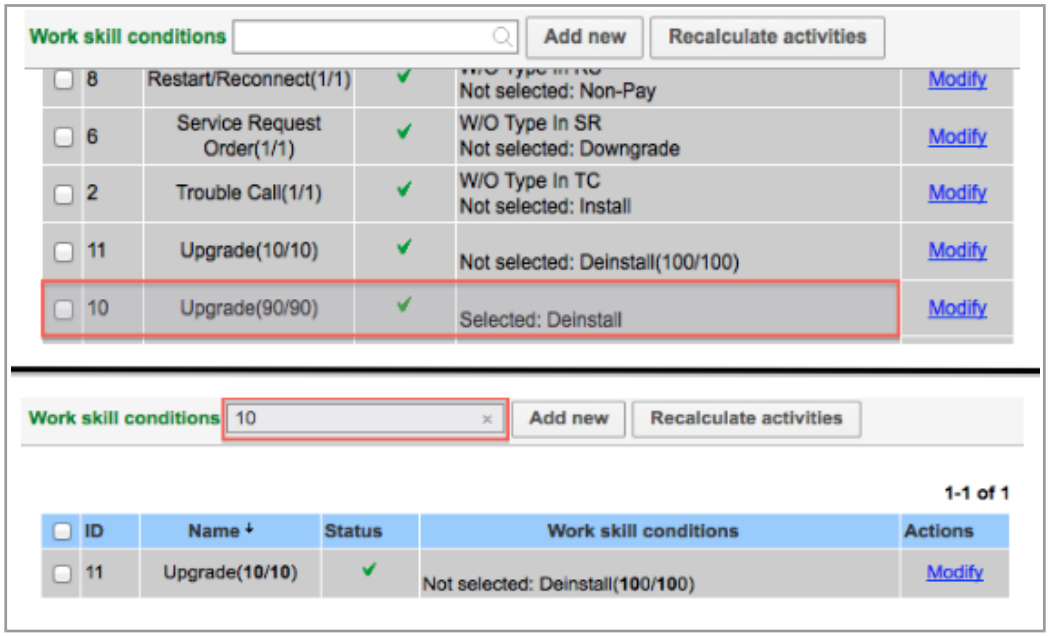


Figure 217: Work skill condition with ID 10 existing (top) but not returned by search (bottom)

In version 4.5.4 the search algorithm has been changed and now includes the ID values, as well. Now search results are complete (Figure 218).

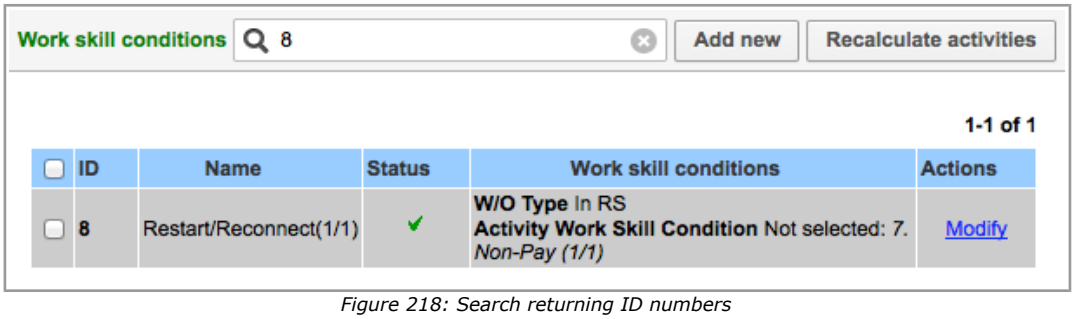


Figure 218: Search returning ID numbers

6.7.20 Work Skills with Special Symbols in Name and Label Saved Properly

In the previous version when special symbols (@, %, #, etc.) were used in a work skill name or label, such work skill was saved with name and label reversed – the label was saved as the name.

This issue has been addressed in version 4.5.4 where work skills with special symbols in their names or labels can be saved correctly.

6.7.21 Message Blocking Conditions Improved by Date Removal from Values of ETA, Delivery Window, Service Window and Time Delivered

Before, the values of ETA, Delivery Window, Service Window and Time Delivered contained both date and time. For that reason they could not be properly used as message blocking conditions as such value format only allowed 'Is null'/'Is not null' or 'Contains'/'Does not contain' conditions. The <, <=, >, >=, 'In'/'Not in' conditions could not be used.

This issue has been resolved by changing the value format to "HH24:MI". The values in 'HH24:MI:SS' or 'HH24:MI:' before will be converted to the "HH24:MI" format. This change allows using ETA, Delivery Window, Service Window and Time Delivered as blocking conditions with all available comparison methods.

6.7.22 Message Scenarios Can Be Deleted Only When Not Used Elsewhere

Previously, it was possible to delete a message scenario even when it was used in a trigger or firewall rule.

Version 4.5.4 includes a check for any triggers or firewall rules which may use the message scenario to be deleted before actually deleting the message. If a message scenario is attached to a notification trigger, used in a firewall rule or has message steps, such scenario cannot be deleted.

6.7.23 Static Filters Work Correctly with Values Consisting of Special Characters

In the previous versions static filters did not allow choosing values consisting of special characters ($, &, +) even though such values were defined for the corresponding property. Those values were missing from the list of available values. When the filter was created as dynamic, all values were shown.

This issue has been resolved in version 4.5.4. Values with special characters are available for selection.

6.7.24 Filter Conditions Improved to Handle Properties with Large Number of Values

When a property with a large number of values was selected as a filter condition in 'Company Settings' → 'Filters', not all values were added.

In version 4.5.4 the field size in the database was increased, and now any number of values can be added to the 'Filter Condition'.

6.7.25 'Work Skill Conditions' Screen and Dialog Windows Redesigned

In order to improve the usability of the 'Work Skill Conditions' screen, the following design changes have been implemented (Figure 219):

- the 'Activity Work Skill' item has been renamed to 'Activity Work Skill Condition' which expresses its correct concept
- ID's of the work skill conditions have been inserted before their names and skill levels in the options list for easier selection
- the 'Work Skill Conditions' grid contains the 'Activity Work Skill Condition' label before the work skill condition name and label
- work skill condition values are now shown in italics which makes the text more transparent
- entries duplicating by multiple clicks of the 'Edit' button which occurred in previous versions has been removed

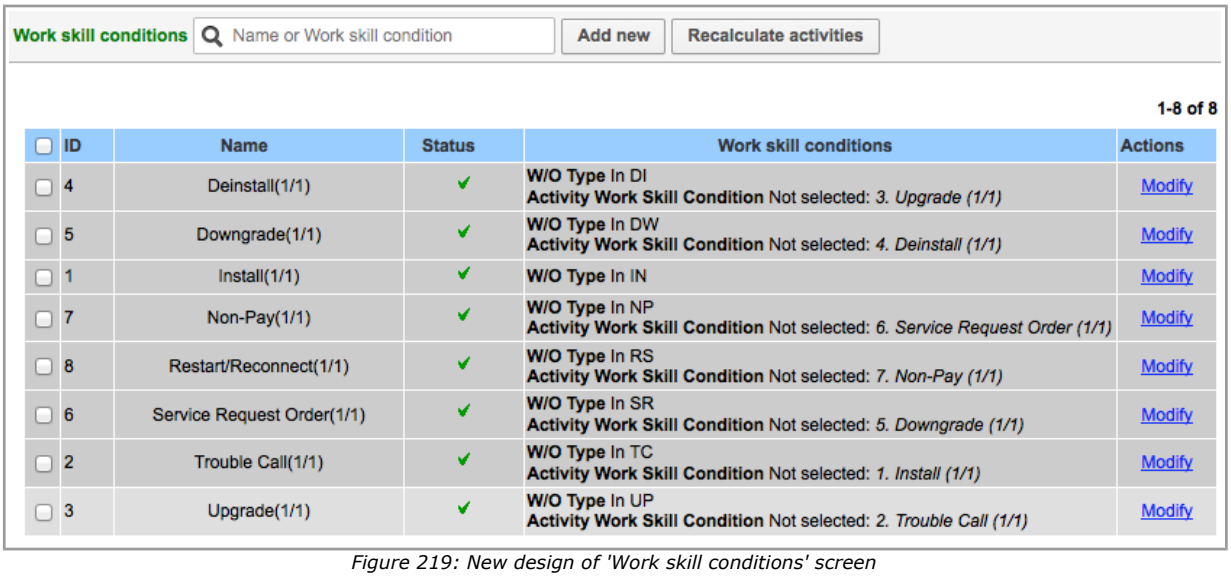


Figure 219: New design of 'Work skill conditions' screen

6.7.26 'OpenId' Login Policy Added

As of version 4.5.4 the system supports authentication of users with OpenId protocol. For that purpose, a new 'OpenId' login policy has been added to the 'Authenticate using' field of the 'Add/Edit Policy' window (Figure 220) and the following new placeholders have been added to the Glossary:

- OpenId
- OpenId identity provider login URL
- OpenId logout URL
- OpenId attribute containing username

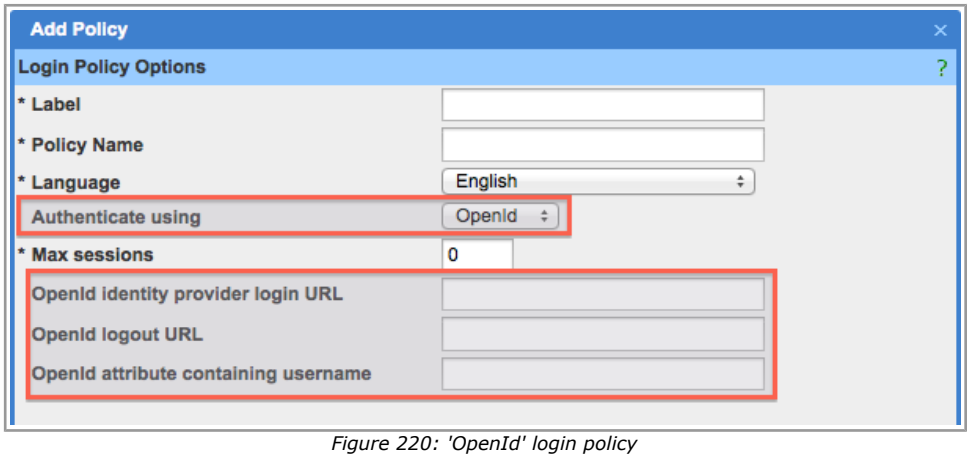


Figure 220: 'OpenId' login policy

6.7.27 Login Policies Editing Improved

In the previous versions names of login policies could not be translated to other languages. When a language other than English was selected in the 'Edit Policy' window and the policy name was changed afterwards, no changes were saved.

This issue has been fixed in version 4.5.4 where the 'Policy name' translations are applied to the selected custom languages.

6.7.28 Glossary Filter Improved

In the previous versions, when 'glossary' was selected as the 'Category' in the 'Glossary' screen filter, the 'Screen' field has only one option – '*' (Figure 221). Therefore, search could only be performed for all screens.

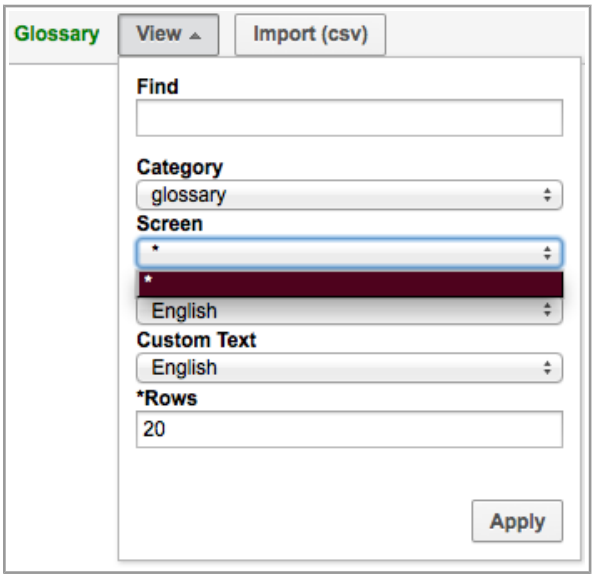


Figure 221: 'Screen' field with only '' option*

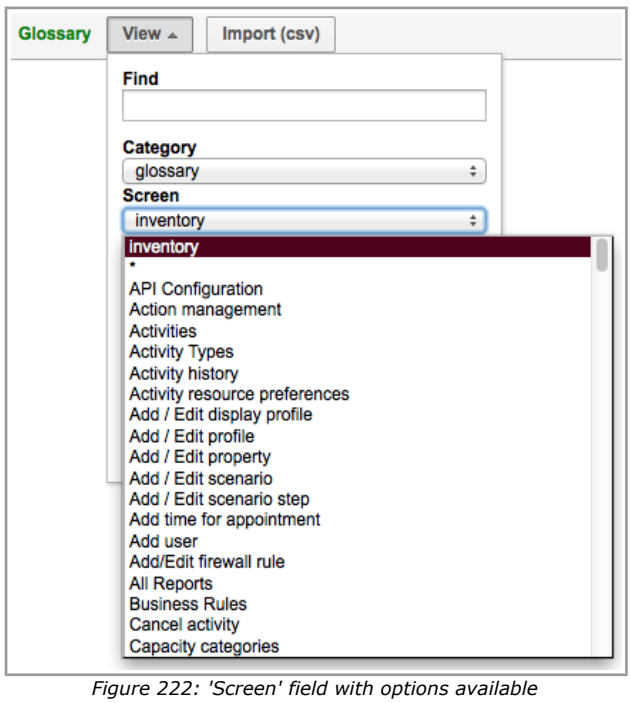


Figure 222: 'Screen' field with options available

In version 4.5.4 the 'screen' field for the 'glossary' category has the list of screens to search in, thus

offering the possibility of more focused search (Figure 222).

6.7.29 Placeholders Spelling Improved

The following placeholders have been changed to the correct spelling:

- 13829: "They **Will** be routed in the same way as before. Activities which have inventory requirements can only be assigned to resources which meet all inventory requirements." changed to "They **will** be routed in the same way as before. Activities which have inventory requirements can only be assigned to resources which meet all inventory requirements."
- 12252, 13244: "**Ok**" changed to '**OK**"
- 13249: "**Api** Profiles" changed to "**API** Profiles"

6.7.30 Placeholders Added to Warning Messages in 'Statistics Parameters'

When the 'Ignore value of duration time field more than', 'Ignore value of duration time field less than', 'Ignore value of travel time field less than', 'Ignore value of travel time field more than' had invalid values, there were no appropriate warning messages. The message read "undefined" instead of the corresponding warning message. The same situation occurred when these fields were empty.
In version 4.5.4 the appropriate placeholders have been added, and the correct warning messages are displayed.

6.7.31 '0' Duration No Longer Accepted

In the 'Statistics Parameters' screen, the 'Default duration average time' and 'Default duration standard deviation' fields no longer accept '0' as a valid value. '0' duration is an unrealistic value and caused Routing errors, therefore, these field have been changed to accept values from 1 to 9999.

6.7.32 Shifts – Activities Editing Functionality Improved

In the previous versions it was impossible to view or edit an activity added to a shift. When the 'Modify' action link was clicked, the system responded with an "Error occurred:- Non-existent activity" message (Figure 223).

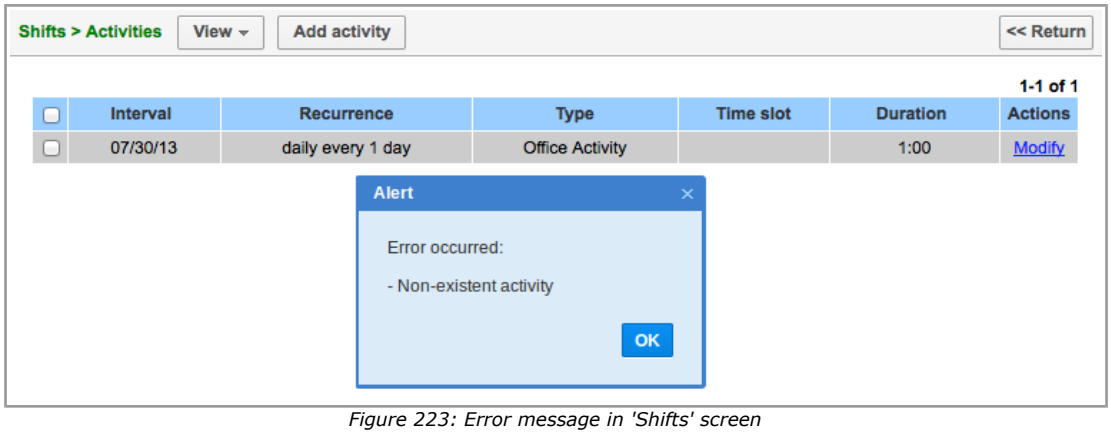


Figure 223: Error message in 'Shifts' screen

In version 4.5.4 this issue has been addressed. Now the 'Modify' action link opens the 'Modify activity' window, as intended.

6.7.33 Shifts – Sorting by Column Retained after Filter Application

If the 'Shifts' grid was sorted in ascending or descending order by any column other than 'Name', such sorting was reset when any filter was applied in the 'View' window. The grid reverted to sorting by the 'Name' column (the default order).

This issue has been fixed. Now the 'Shifts' grid remains sorted by the previously selected column after filter application.

6.7.34 ReadOnly Permission Applies Properly to 'Center Point Home Zone Support' Parameter

When the ReadOnly permission was set for the 'Center point home zone support' parameter of 'Routing plan', the user was still able to change it.

Now the permissions processing has been improved, and the ReadOnly permission no longer allows editing the parameter.

6.7.35 'Refresh' Permission Removed as Obsolete

Since the Manage Application no longer has the 'Refresh' button, the 'Refresh' permission has become obsolete. In version 4.5.4 it has been removed from the 'Permissions' list and the corresponding databases.

6.8 Forecasting

6.8.1 Data Import Improved

When the user selected a file with historical data in the 'Import data' dialog window to import in Forecasting, the browser opened a new empty tab while the previous tab became inaccessible. The 'Import data' dialog window could no longer be closed.

In version 4.5.4, no new browser tabs are opened, and data can be successfully imported in Forecasting via the 'Import data' dialog window.

6.8.2 Invalid Data Ignored for Units and Deviations

As of version 4.5.4 Forecasting ignores any invalid (negative) data imported in the .csv file containing historical data for units and deviations. Any records containing invalid data are ignored and only positive values are saved.

6.9 DashBoard

6.9.1 'Routing Error Reasons' Report Improved

In the previous versions the 'Routing Error Reasons' report permanently displayed the 'no data' message. The corresponding errors were logged.

The report was fixed and now it displays 'no data' only when there is actually no data to report. No errors are written to the log.

6.9.2 'PAS Responses per Resource' Permission Improved

The name of 'PAS responses per resource' report had a spelling mistake in the 'Permissions' screen and in the DashBoards ('PAS respon**c**es per resource') (Figure 224). Therefore, the search for this report was sometimes impossible.

In version 4.5.4 the report has a correct name which allows its proper search and use (Figure 225).

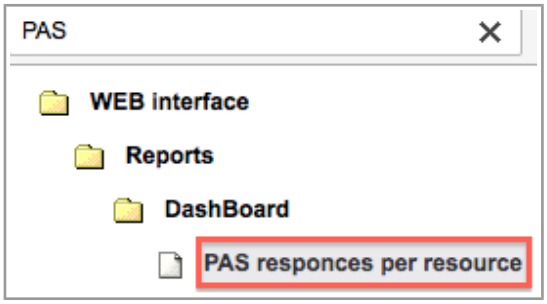


Figure 224: Incorrect spelling

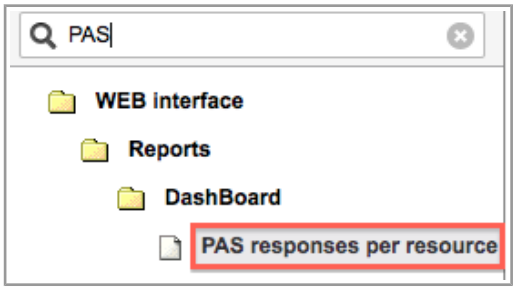


Figure 225: Correct spelling

6.10 Inventory

6.10.1 Custom Inventory Report Implemented

As of version 4.5.4 ETAdirect offers a custom inventory report allowing to monitor the inventory flow for the selected resource.

For this purpose a new main menu item 'Inventory Report' has been added and can be inserted in the appropriate context layout (Figure 226).

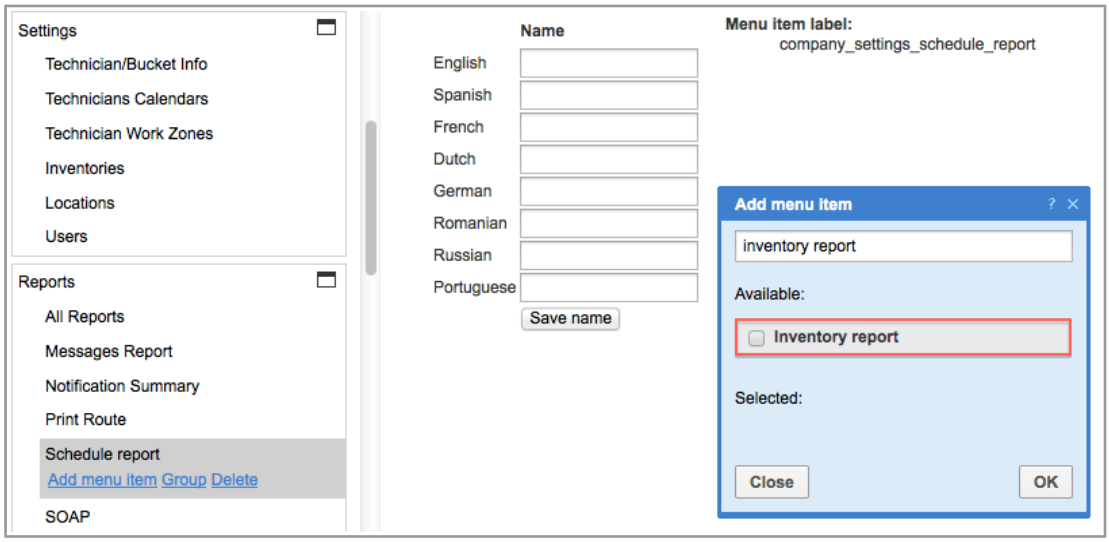
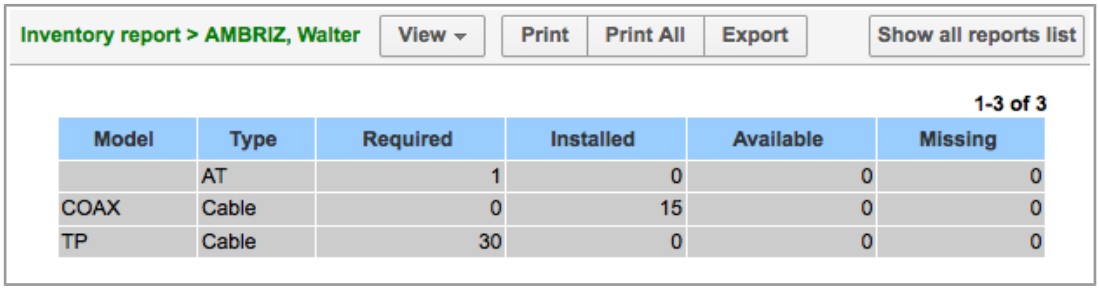


Figure 226: 'Inventory report' main menu item

When added, the inventory report (Figure 227) shows the following data per resource:

- quantity of required inventory on selected date
- quantity of installed inventory on selected date
- quantity of inventory in provider pool (only if the selected date is today, otherwise the value is 0)
- quantity of missing inventory (only if the selected date is today, otherwise the value is 0)



Model	Type	Required	Installed	Available	Missing
	AT	1	0	0	0
COAX	Cable	0	15	0	0
TP	Cable	30	0	0	0

Figure 227: Inventory report

When the activities are moved to another resource, rescheduled, moved to the non-scheduled pool or deleted, the summary information in the report is updated.

6.10.2 Inventory Quantity Displayed as Integer

Since ETAdirect does not support fractional quantity of inventory, the 'quantity' field in represented as 'int' instead of 'double'. Inventory quantity is displayed without the fractional part both in the Manage and Mobility Applications.

6.10.3 Selection of Pool to Install Required Inventory from

As of version 4.5.4 the 'Install' action of the 'Required Inventory Details' screen in the Mobility Application allows selecting the team member's pool from which inventory can be installed. When the activity is performed by a team in which inventory is shared, the 'Install' action provides a dropdown list of all available inventory pools (Figure 228).

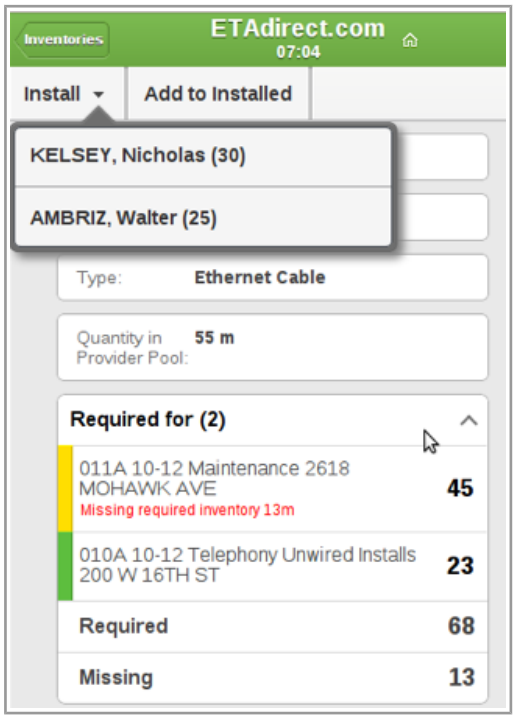


Figure 228: List of available pools

When there is more than 1 inventory pool, the drop-down list is shown. When there is only 1 pool, the 'Install' link leads directly to the 'Install inventory' screen. If no inventory matches the required inventory,

the 'Install' link is hidden.

6.10.4 Internet Explorer 7 – Serial Number Icon Positioned Correctly

In the previous version, when ETAdirect was run on Internet Explorer 7, the 'Reopen activity' window displayed the serial number icons close to the right edge of the window and outside the 'Inventory' tab (Figure 229). This behavior was observed for routes containing only not-ordered activities.

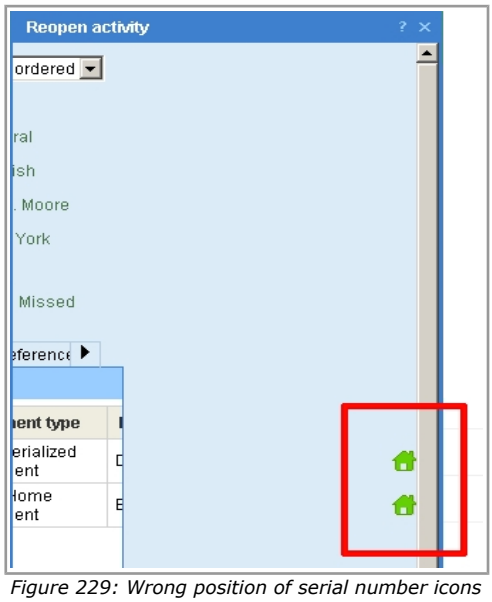


Figure 229: Wrong position of serial number icons

In version 4.5.4 the serial number icons are positioned correctly.

6.10.5 Special Symbols Escaping Added to File Names in Inventories Screen

File names containing special HTML characters were displayed incorrectly in the inventory hints. The special characters were not escaped, and file names were shown as buttons instead of plain text or not shown at all.

Special characters escaping has been added to file properties in grids and hints. Now file names containing special characters are displayed correctly.

6.10.6 New Placeholders Added to Distinguish between Different Inventory Quantities

With the introduction of non-serialized inventory ETAdirect now is able to display inventory quantity. For better usability the following placeholders related to inventory quantity have been implemented for Manage Application:

– 12687: Qty Available (used to define the inventory quantity in the resource's pool)

– 12697: Quantity to Install (used in the 'Install' dialog to define the quantity of inventory to be installed)

– 12698: Quantity to Deinstall (used in the 'Deinstall' dialog to define the quantity of inventory to be deinstalled)

This way these three quantity fields can be distinguished from the 'Quantity' field which already exists in the system.

6.10.7 Inventory without 'Model Property' Can Be Installed/Deinstalled

When no 'Model property' was defined for inventory, such inventory could not be installed or deinstalled in the Mobility Application. After the form submission the inventory was not created in the 'installed' or 'deinstalled' pool, respectively.

This issue has been fixed. Inventory can now be installed or deinstalled without 'Model property' defined.

6.10.8 Serialized Inventory with 'Model Property' Defined Can Be Installed/Deinstalled Correctly

Serialized inventory with 'Model property' defined was handled like non-serialized inventory in installation/deinstallation. When more than 1 item of the same serialized inventory were installed or deinstalled, their quantity was added, while for serialized inventory quantity must always be 1 and new entries must be created.

After the necessary changes, when several items of similar serialized inventory are installed/deinstalled, their entries are duplicated with quantity always being 1.

6.10.9 'Name' and 'Unit of Measurement' of Inventory Type Accessible

In the previous versions the 'Name' and 'Unit of measurement' fields in the 'Add inventory type' window were hidden and could not be set (Figure 230).

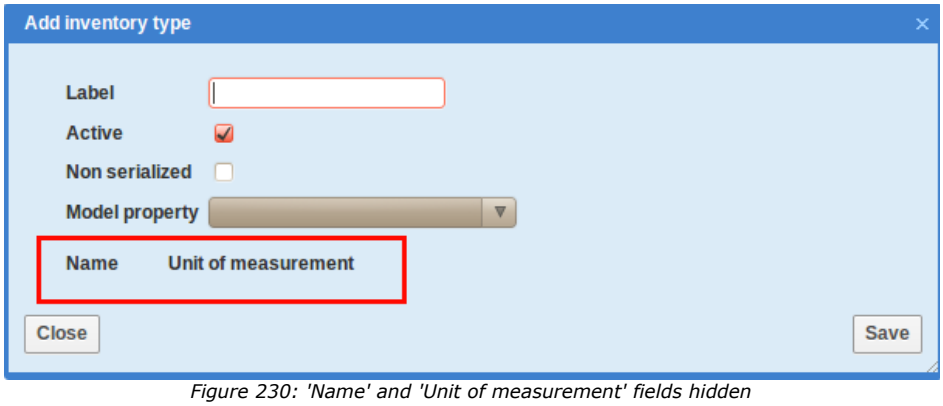


Figure 230: 'Name' and 'Unit of measurement' fields hidden

The inventory type model has been changed, and the 'Name' and 'Unit of measurement' fields are visible and can be filled-in (Figure 231).

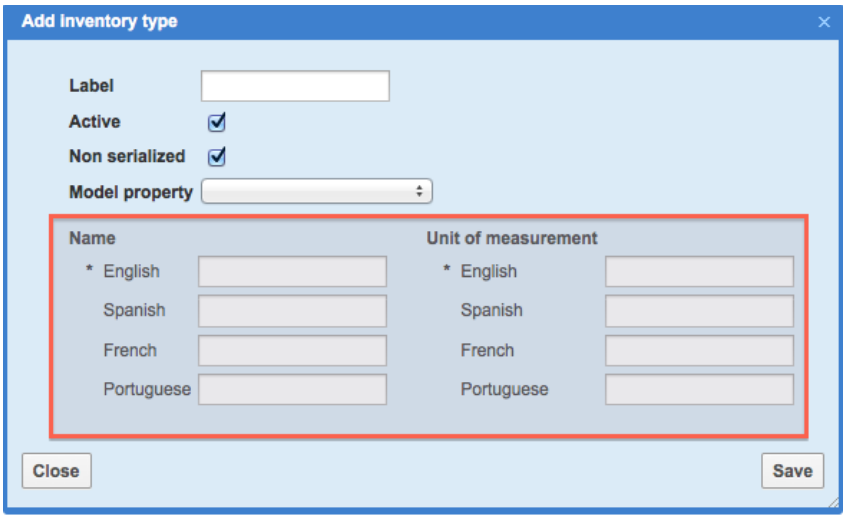


Figure 231: 'Name' and 'Unit of measurement' fields visible

6.10.10 'Unit of Measurement' Visibility Depends on 'Non-Serialized' Checkbox

As only non-serialized inventory can have quantity and be measured, it is logical that units of measurement should be applicable only to non-serialized inventory. Therefore, the 'Add inventory type' window has been changed so that the 'Unit of measurement' section is only visible when 'Non-serialized' is checked (Figure 232-233).

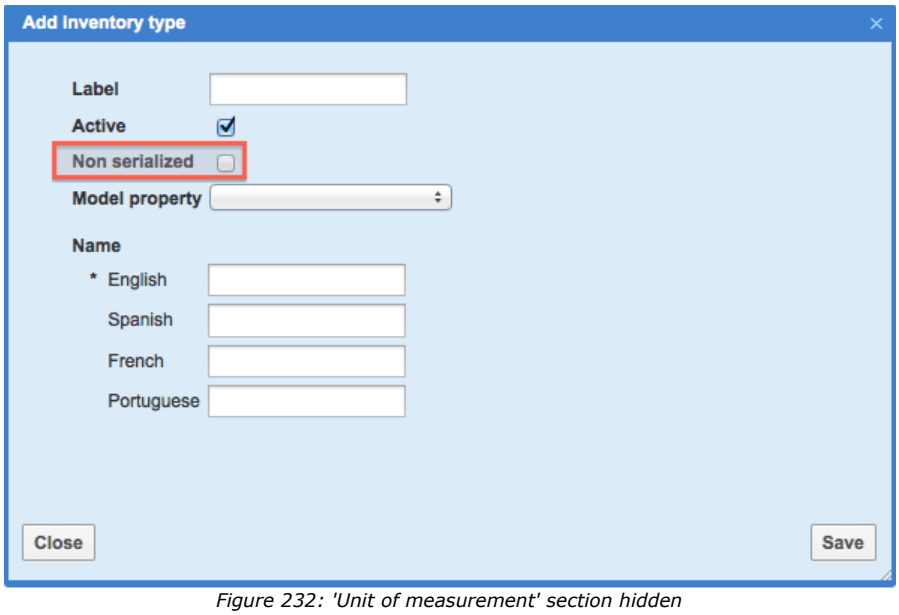


Figure 232: 'Unit of measurement' section hidden

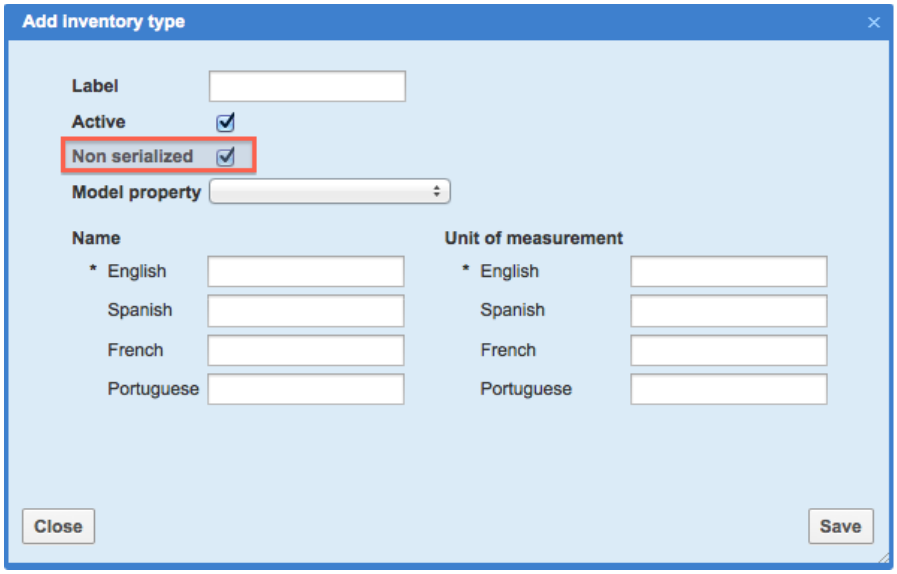


Figure 233: 'Unit of measurement' section visible

6.10.11 Non-Serialized Inventory Can No Longer Be Exchanged

By concept, non-serialized inventory cannot be exchanged, it can only be installed or deinstalled. However, there were cases when 'Exchange' action link was shown for non-serialized inventory in the customer's pool and it could be exchanged with serialized inventory in the resource's pool.

This was illogic and misleading, and after the necessary changes the 'Exchange' action link is no longer shown for non-serialized inventory. Also, non-serialized inventory is no longer suggested for exchange in the 'Exchange' dialog window.

6.10.12 Required Inventory Behavior Improved

Required inventory without the 'Model property' could be loaded via the Inbound Interface, however, such inventory was not visible in the Manage Application. It was only visible in the Mobility Application, moreover, 'model' was shown as 'undefined'. Such inventory was not regarded by the system as 'required' – no warnings were issued when such inventory was missing.

The Inbound Interface has been adjusted to handle required inventory without model properly. Such inventory is now displayed correctly and is included in the 'missing required inventory' calculations.

6.10.13 Installation/Deinstallation of Non-Serialized Inventory Improved

In the Mobility Application non-serialized inventory could not be installed or deinstalled, as the 'Submit' button in the 'Install/Deinstall Inventory' screen was not clickable. The 'Quantity' field did not appear, either.

The issue has been fixed. Non-serialized inventory can be properly installed or deinstalled. The 'Quantity' field appears on the screen if added to the corresponding context layout.

6.11 Routing

6.11.1 Change of Algorithm Calculating "Working Day" Interval Start

The algorithm calculating the "working day" interval start has been changed. Now it takes into account the activities with the estimated time of completion on the next working day. This situation can occur in

routes with activities started close to the end of the working time or with activities with a very long duration (24 hours).

Before, the end time of such activities was not passed to Routing which could result in other activities assigned to the same period of time and, therefore, in the resource's overtime. As of version 4.5.4 the algorithm has been changed and now it takes into account the end time of such activities and passes it to Routing which provides a solution for companies using the overnight functionality and Routing at the same time.

6.11.2 Text in 'Add/Modify Routing Plan' Screen Changed

- The following text has been changed in the 'Filter parameters' window of the 'Add/Edit routing plan' screen (Figure 234):

  Do not assign activities provider is unlikely to arrive in [____] min. before end of time-slot*

  Changed to:

  Do not assign activities if technician is unlikely to arrive [____] min. before end of time-slot*

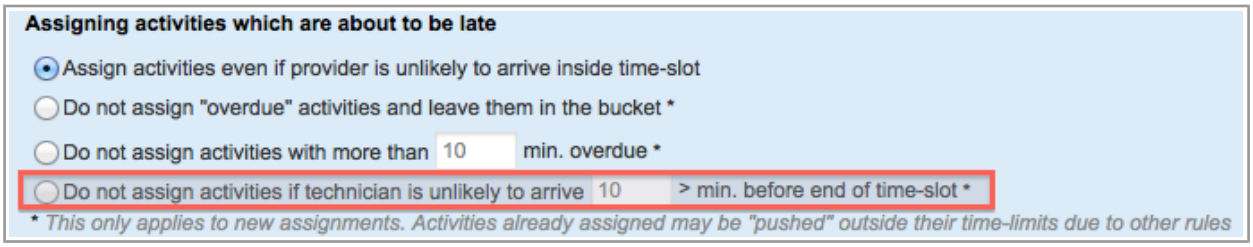


Figure 234: Reworded text in 'Filter parameters' window

  This change was required to maintain the consistency of the ETAdirect terminology as well as to express a clear message.

- In some sections of the text in the 'Filter parameters' window spaces and dashes were missing which made the text difficult to read (Figure 235).

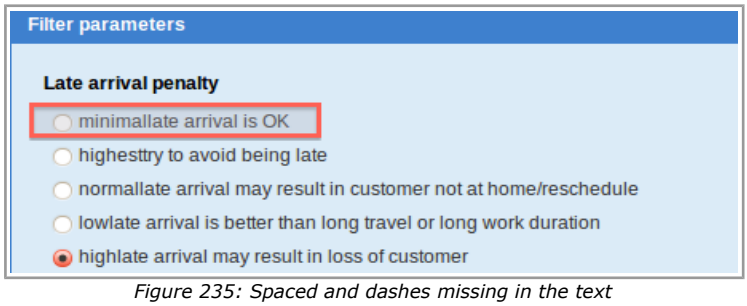


Figure 235: Spaced and dashes missing in the text

  In version 4.5.4 spaces and dashes have been added to the text which makes it clear and readable (Figure 236).

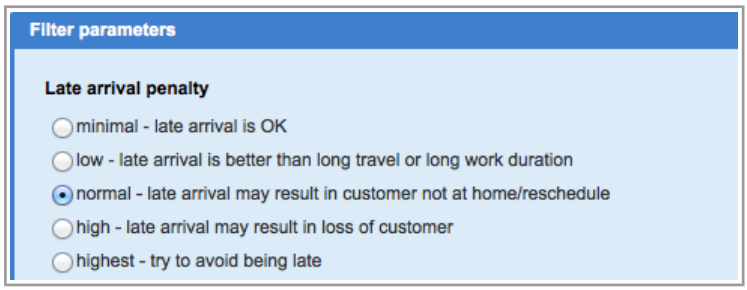


Figure 236: Spaces and dashes added

6.11.3 Hints Added to Icons in Routing Plan 'Filters' Section

For easier orientation in the Routing plan configuration, the following hints have been added to the icons in the 'Filters' section:

- 'Move to change order' appearing for the icon used to drag and drop rows of the table (Figure 237)

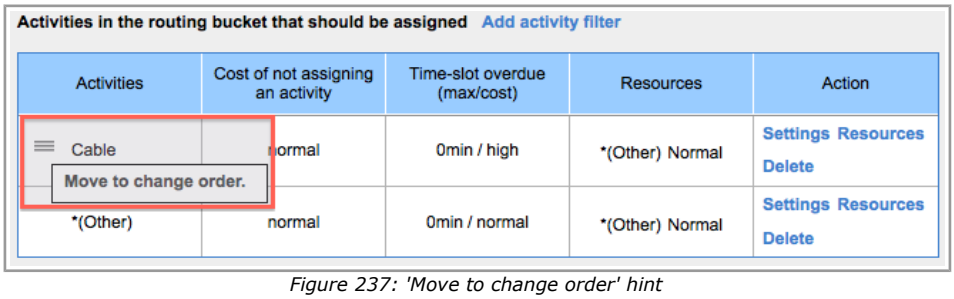


Figure 237: 'Move to change order' hint

- 'Change order, add new resources and deactivate existing' appearing for the icon used to edit resources (Figure 238)

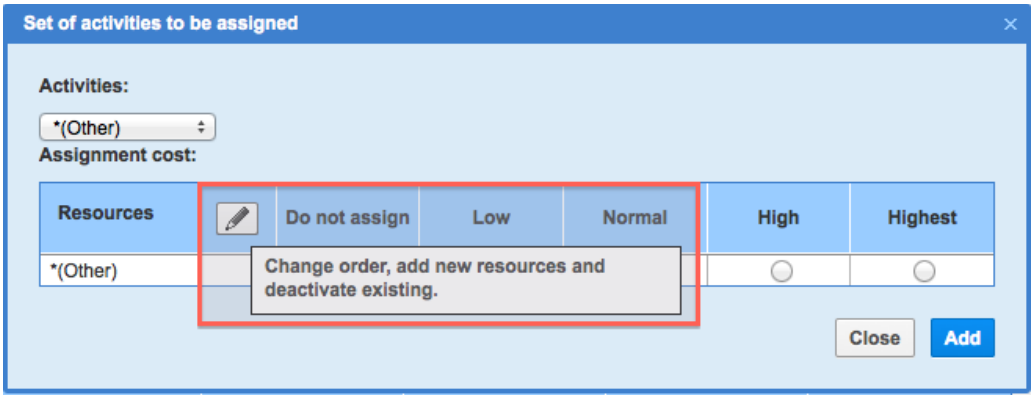


Figure 238: 'Change order, add new resources and deactivate existing' hint

These hints help the user to understand how the Routing plan elements can be easily managed.

6.11.4 Correct Number of Routing Plans/Profiles Selected for Group Actions

In the previous versions the system displayed the number of routing plans/profiles selected for group actions incorrectly – instead of the number only the {ROUTING_PLANS_COUNT} placeholder was shown.

The placeholder translations were added, and now the number of selected routing plans and/or profiles is shown.

6.11.5 Copyright String Shown Correctly after Routing Plan/Profile Search

Sometimes, after the search for routing plans/profiles the copyright text font increased.

This resulted from multiple appending of the copyright text. This issue has been fixed, and now the copyright text looks correct.

6.11.6 Different Messages Displayed for Different Routing Plan Actions

In the previous version the system responded with the same message – "Routing plan "<routing plan name>" successfully created" – to routing plan creation, cloning or update.

As of version 4.5.4 for each action a corresponding message is displayed:

"Routing plan "<routing plan name>" successfully created" – for Routing plan creation

"Routing plan "<routing plan name>" successfully cloned" – for Routing plan cloning

"Routing plan "<routing plan name>" successfully updated" – for Routing plan update

6.11.7 Correct Message Displayed upon Group Deletion of non-Assigned Routing Plans

Previously, when a user tried to delete a group of routing profiles, where some were and some were not assigned to a bucket, the non-assigned routing profiles and plans would be successfully deleted. The system, however produced an incorrect message for non-assigned routing plans: "{routing plan name} is already in use and can't be deleted".

This has been fixed in 4.5.4 and now after a non-assigned routing profile has been deleted, the system displays a correct message: "1 routing profile successfully deleted".

6.11.8 Internet Explorer 7, Internet Explorer 8 – Routing Plan Time Limits Sorted in Ascending Order

As of version 4.5.4, when ETAdirect is used in Internet Explorer 7 or Internet Explorer 8, the values of the 'Time limit' field have been rearranged in the ascending order (Figure 240). In the previous version the values were out of sequence (Figure 239).

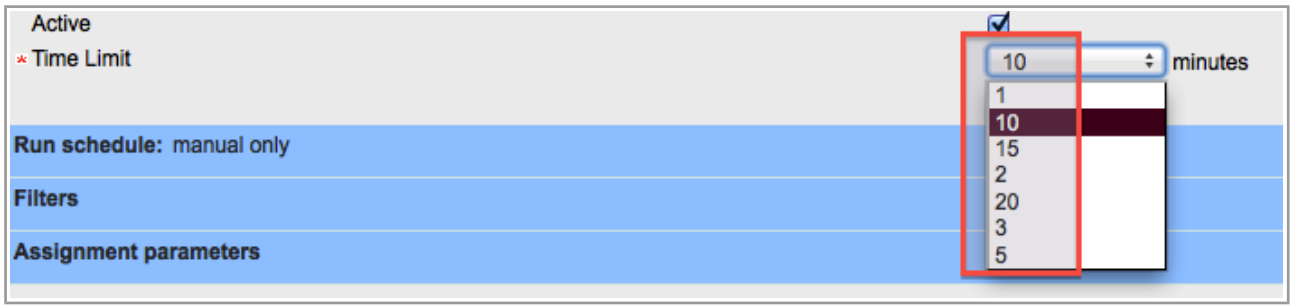


Figure 239: 'Time limit' sorting before the change

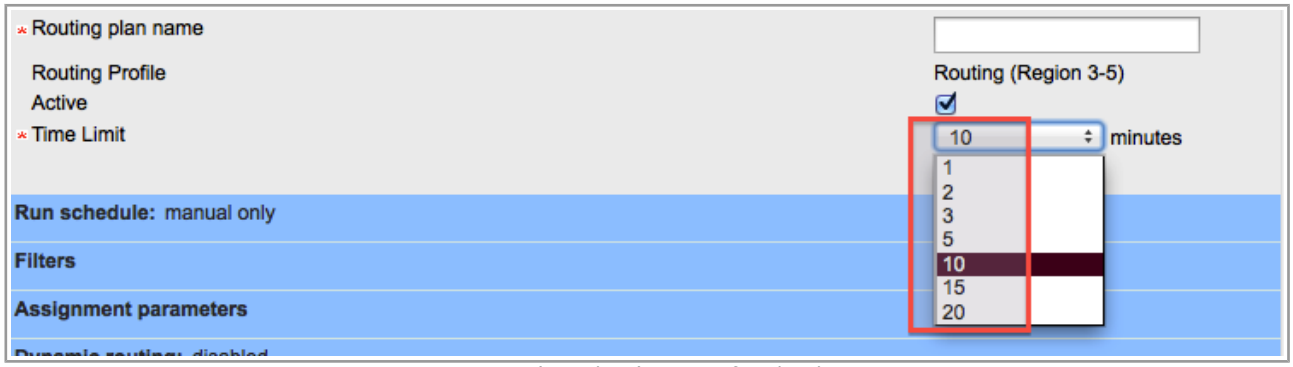


Figure 240: 'Time limit' sorting after the change

6.11.9 'Modify Routing Profile' Window Button Changed

The button submitting the 'Modify routing profile' window had in incorrect name – 'Update' – which was inconsistent with the window caption (Figure 241).

The button has been renamed to 'Modify' which matches the window caption (Figure 242).

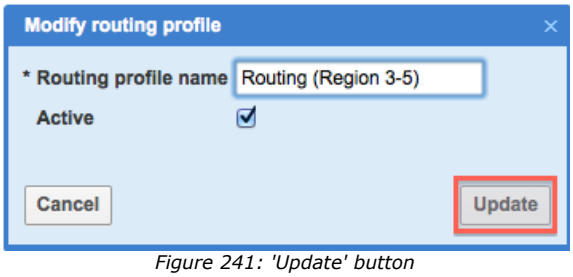


Figure 241: 'Update' button

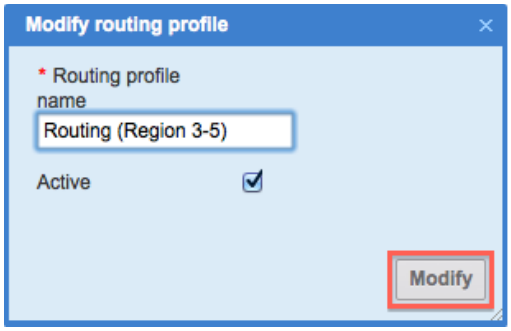


Figure 242: 'Modify' button

6.11.10 'Routing Profiles' Screen Pagination Improved

When the user set a large number of rows (e.g. 50) to be displayed in the 'Routing profiles' screen, the page selector was hidden. It appeared only when a smaller number of rows was set or after relogin.

In version 4.5.4 the screen refresh function has been added, and now the page selector with links to other pages remains visible on the screen.

6.11.11 'Home Zone Radius' Parameter Improved after Migration

During the version migration the 'Home zone radius' parameter migrated with a change from 15 to 24,135 miles. Such change affected all existing routing plans.

This was caused by lack of meters to km/miles conversion which was added in version 4.5.4. Now the 'Home zone radius' field shows the correct value.

6.11.12 New Non-Assignment Reasons Displayed

With the Routing functionality enhancement new non-assignment reasons have been introduced: 'Other', 'too expensive', 'unacceptable SLA overdue'. However, they were not displayed in the 'Routing execution log.

In version 4.5.4 translations for these non-assignment reasons have been added, and now they are

displayed in the log correctly.

6.11.13 Time Validation for Routing Run Schedule Improved

In version 4.5.4 the time value validation has been improved and enhanced. Now the system checks the values of the fields in the 'Run schedule' section of the Routing plan and rejects invalid entries.

- if the 'Run routing' field is set to 'recurrent', the 'from' time must be earlier than the 'to' time, otherwise both fields are highlighted in red and an error message is displayed. The form is rejected Figure 243)

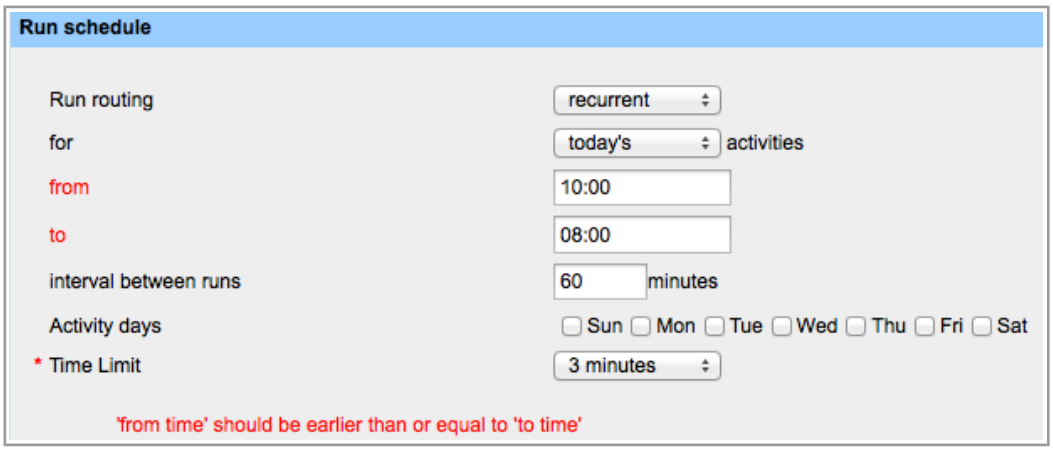


Figure 243: Error message for invalid values of 'from' and 'to' fields

- if the 'Run routing' field is set to 'recurrent', both 'from' and 'to' fields must be filled-in, otherwise both fields are highlighted in red and an error message is displayed. The form is rejected (Figure 244)

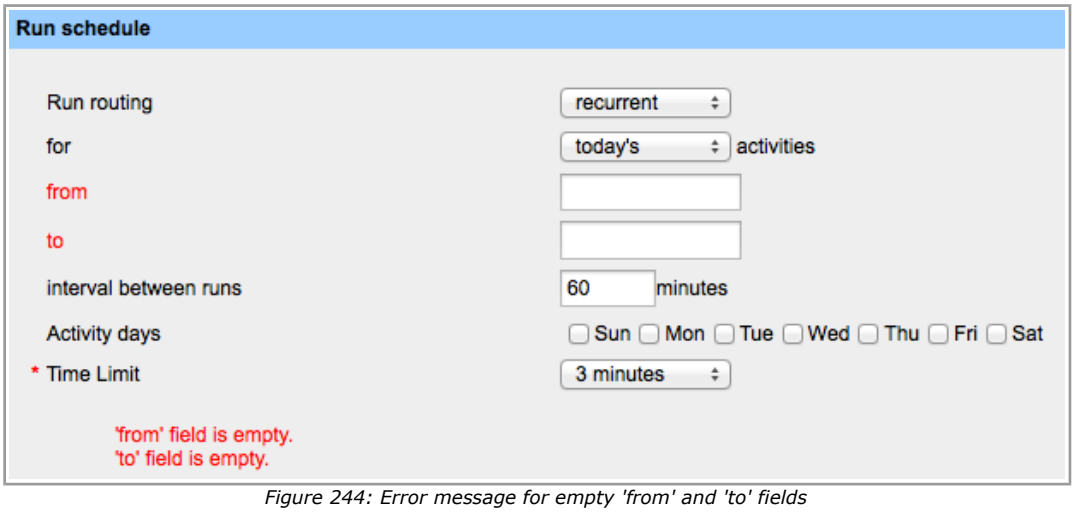


Figure 244: Error message for empty 'from' and 'to' fields

- if the 'Run routing' field is set to 'once a day', the 'at' field must be filled-in, otherwise both fields are highlighted in red and an error message is displayed. The form is rejected (Figure 245)

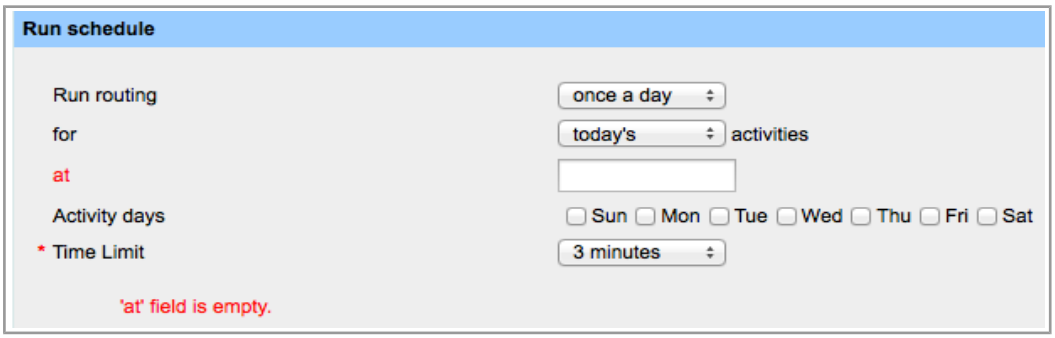


Figure 245: Error message for empty 'at' field

6.11.14 "Recurrent" Run Changes to Other Values Correctly

There were cases in previous versions, when changes would not take place after a user tried to change an existing routing plan with "recurrent" run to a different value (e.g. manually).

This has been been fixed in 4.5.4, and thus, the changes now apply and "recurrent" run can be changed to other values as initially intended.

6.11.15 'once a day' and 'recurrent' Routing Plans can now be Created

In previous versions created 'once a day' and 'recurrent' Routing Plans would not display in the Routing Profiles screen, and the database did not contain a corresponding record. In other words, the plan was not saved.

This issue has been fixed in 4.5.4 and 'once a day' and 'recurrent' Routing Plans can now be created and saved correctly.

6.11.16 Error Messages and Notifications Disappear after Screen Reopening

In the previous versions error messages and notifications remained on the screen even after the user opened a different screen and later reopened the 'Routing Profiles' screen again.

This issue has been fixed in version 4.5.4, and messages disappear when the user reopens the screen.

6.11.17 Assignment Parameters Section Displayed Correctly

The text in the assignment parameters section of Routing Plan used to overlap (Figure 246).

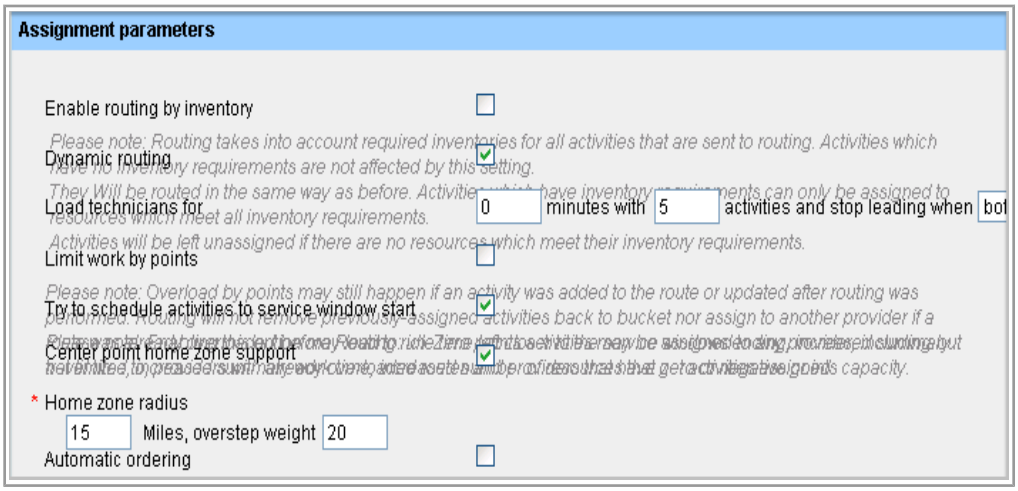


Figure 246: Overlapping text in the assignment parameters section

This issue no longer occurs in 4.5.4 and the data on the screen is displayed correctly.

6.11.18 'Center Point Home Zone Support' Displayed Only When Enabled

The assignment parameters section of the Routing profile continued to show the 'Center point home zone support' and 'Home zone radius overstep weight' settings even when 'Center point home zone support' was disabled (Figure 247-248).

Figure 247: 'Center point home zone support' disabled

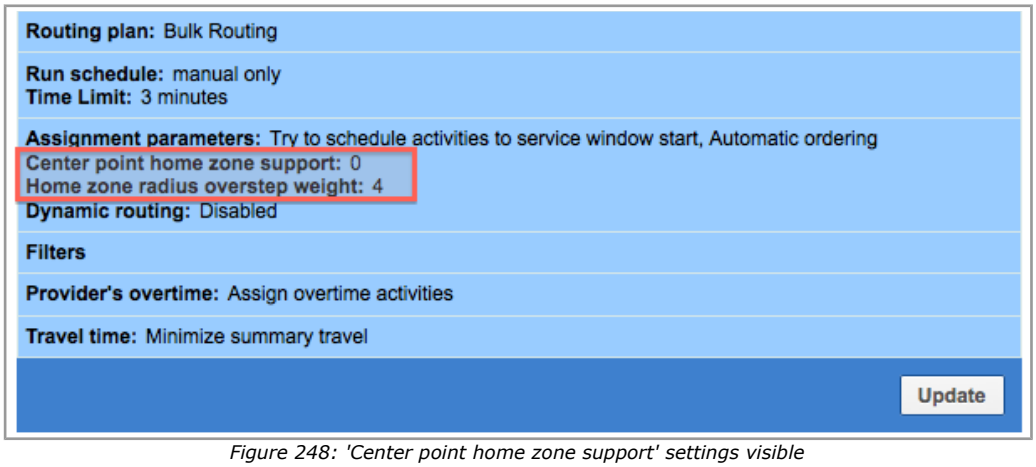


Figure 248: 'Center point home zone support' settings visible

Now the collapsed 'Routing Profile' window displays only the information on the enabled options. The disabled options are hidden.

6.11.19 "Routing by Inventory" Displayed only when Selected

In the previous version, 'Routing by inventory' would display in section title of the 'Assignment parameters' even if this parameter had not been selected.

This has been fixed in 4.5.4 and 'Routing by Inventory' parameter does not show, unless it was previously checked.

6.11.20 Caption to Assignment Parameters Section Displays a Correct Label

In the previous version when a user selected the "Try to schedule activities to service window start" and collapse the section, the system showed "Route uniformity" on the caption to the Assignment parameters section (Figure 249). When, instead, it should have displayed the label respective to the checkbox name.

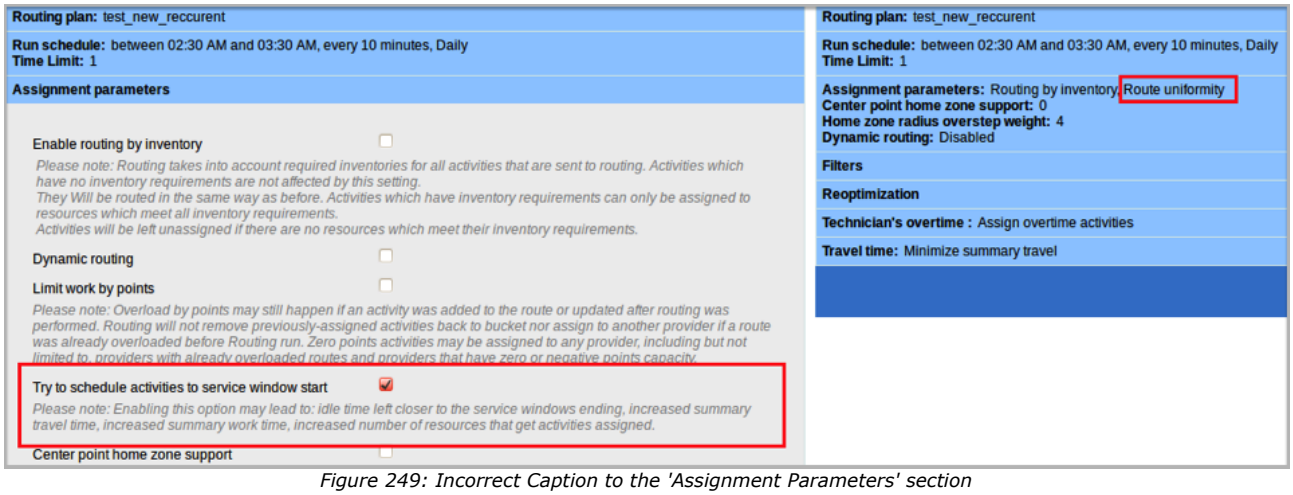


Figure 249: Incorrect Caption to the 'Assignment Parameters' section

This issue has been fixed in 4.5.4 and the caption of the Assignment Parameters section is displayed correctly: "Try to schedule activities to service window start".

6.11.21 Correct Values Displayed in the Database and List of Routing Plans

Previously, there were occurrences when the scheduled “for” field didn't change after having saved different values. So the database and the actual Routing Plan values would differ.

This has been fixed in 4.5.4 and now correct values are displayed both in Database and the list of Routing plans.

6.11.22 Routing Plans not in Use can be Deleted

In the previous version, group delete action was impossible if at least one Routing Plan could not be deleted (Figure 250).

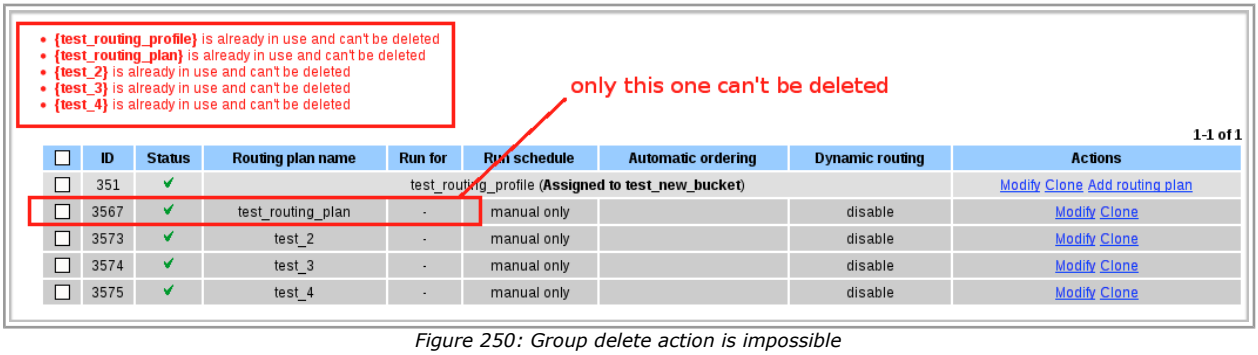


Figure 250: Group delete action is impossible

This has been fixed in 4.5.4 and now Routing Plans that are not in use can be successfully deleted. An error message will appear only at an attempt to delete plans that are in use.

6.11.23 'Dynamic Routing' Option Disabled by Unchecking

Previously, it was impossible to disable the 'Dynamic Routing' option by unchecking it. The option remained enabled. In order to actually disable it, a user would have to manually delete the parameters of Dynamic Routing.

This has been changed in 4.5.4 and now it is possible to disable the 'Dynamic Routing' option by merely

unchecking it.

6.11.24 Correct Text for Manually Started Plan Confirmation Message

Confirmation message for a manually started Routing Plan, used to display incorrect text (Figure 251).

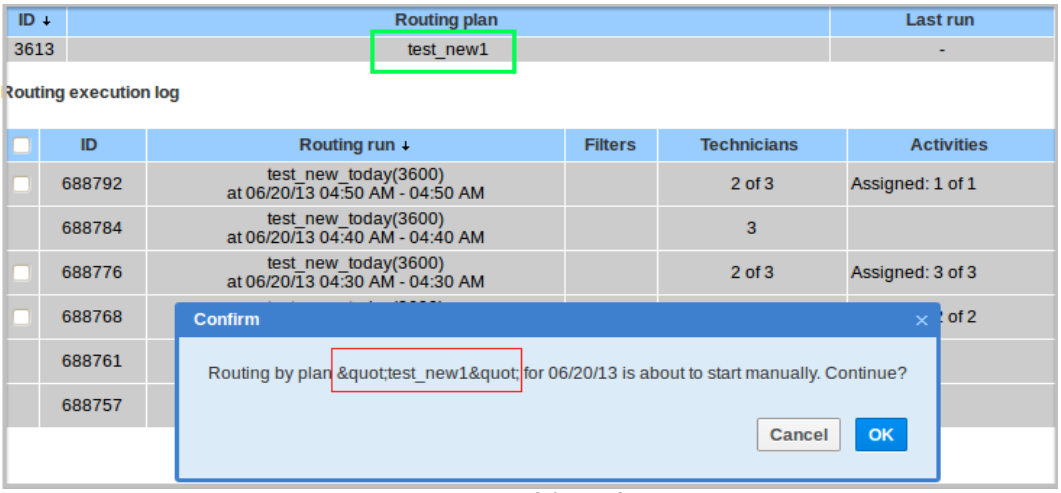


Figure 251: Incorrect text of the confirmation message

This has been fixed in 4.5.4 and now the confirmation message displays correct text.

6.11.25 Scrollbar Available in the 'Edit Resource Filter' Window

In the previous version, the 'Edit resource filter' window did not fit the Routing Profiles screen if there were a lot of resources listed (Figure 252).

The window simply could not be scrolled to the bottom.

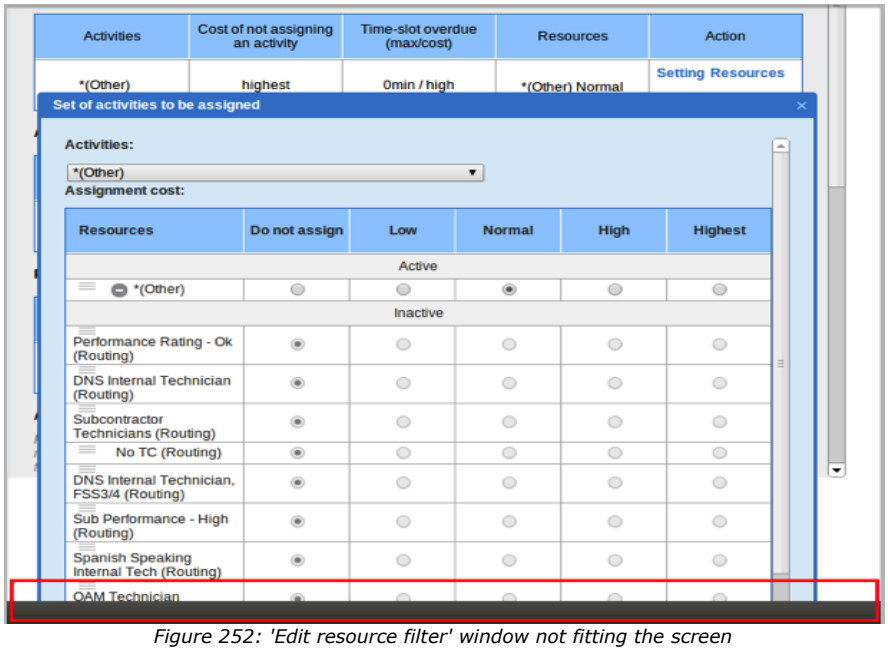


Figure 252: 'Edit resource filter' window not fitting the screen

This has been fixed in 4.5.4 and now the 'Edit resource filter' window fits the screen and the scrollbar is available.

6.11.26 "Add Routing Plan Filter" Screen Improved

In the previous versions, the list of available filters, which a user could select on the "Add Routing Plan Filter" screen was sorted by Filter ID.

In 4.5.4, it has been decided to sort the activity filters alphabetically (by Filter name) for better usability.

6.11.27 Increased Default Amount of Routing Profiles to be Activated/Deactivated by Group Action

In the previous versions it was impossible to apply group action (activate/deactivate) to all routing profiles if there were too many. However, after the execution of the group action, a message would appear displaying that the action was implemented successfully to all chosen profiles, which was confusing.

This has been fixed in 4.5.4 by increasing the default number of routing profiles to which group action can apply. Now, the group action on routing profiles applies as intended.

6.11.28 Routing Plan Run Time Limit Can Be Defined in Seconds

As certain situations require the minimum Routing run duration to be less than 1 minute, the Routing Plan settings have been changed, so that now the 'Time Limit' field can be set in seconds. This way time limits under one minute can now be set.

6.11.29 Routing Supports Minimal and Maximal Intervals between Linked Activities

With the enhancement of the Linked Activities functionality, Routing has been changed to take into account the minimal and maximal intervals between linked activities (for finish-to-start and start-to-start links only). For this purpose new attributes, 'delay_min' and 'delay_max', have been implemented.

6.11.30 'Filters' Section Removed from Routing Execution Log

As the 'Filters' section in the Routing execution log and the comparison dialog is no longer used, it has been removed.

6.12 Quota Management

6.12.1 Cell Statuses Marked Correctly

In the previous versions the cell status in the Quota Management screen was displayed incorrectly – even when one work zone was open, the cell status was still shown as 'closed'.

In version 4.5.4 the algorithm calculating the cell status has been changed. Now it counts all active work zones and displays the status of the whole cell correctly.

6.12.2 Quota Status and Close Time Popups

In version 4.5.4 the Quota Management screen functionality has been enhanced by adding a new popup accessible by clicking the 'Status' cell when such cell in in ReadWrite mode (Figure 253). The new popup has the list of work zones available for the selected bucket. Quota for each work zone can be closed or opened manually by the checkboxes located next to each work zone name. Quota for all work zones can be opened or closed simultaneously by means of 'Open all' and 'Close all' buttons. These buttons control the quota for all work zones in the selected capacity category as well as for the capacity category itself.

If a close time is set for a work zone, such close time is shown next to the work zone name. If a close time has been set for the entire capacity category, such close time is shown for all work zones in grey

font.

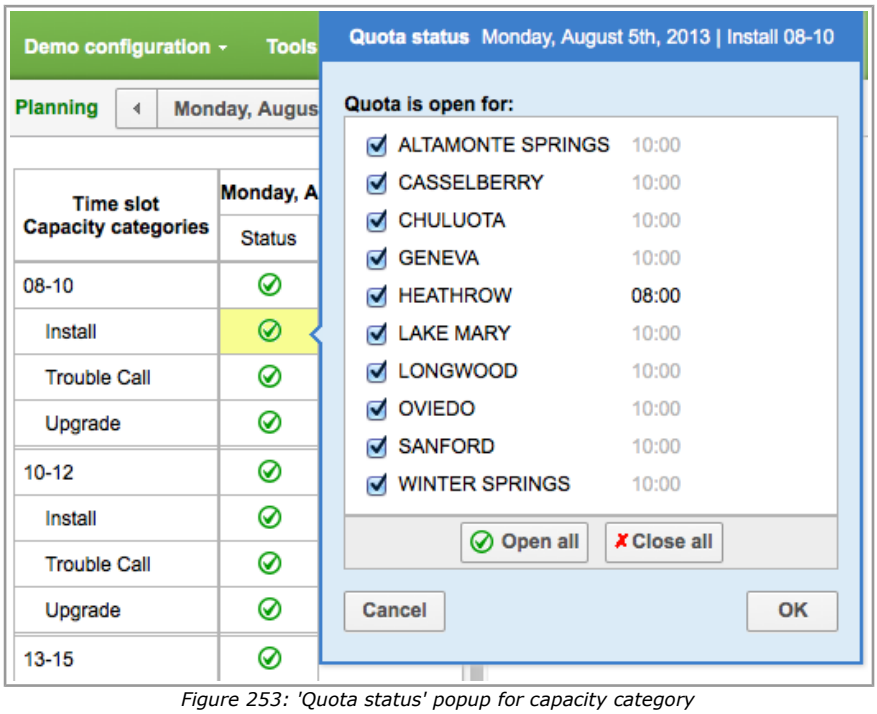


Figure 253: 'Quota status' popup for capacity category

The popup opened on the day or time slot level only has 'Open all' and 'Close all' buttons to open or close quota for the selected day or time slot (Figure 254).

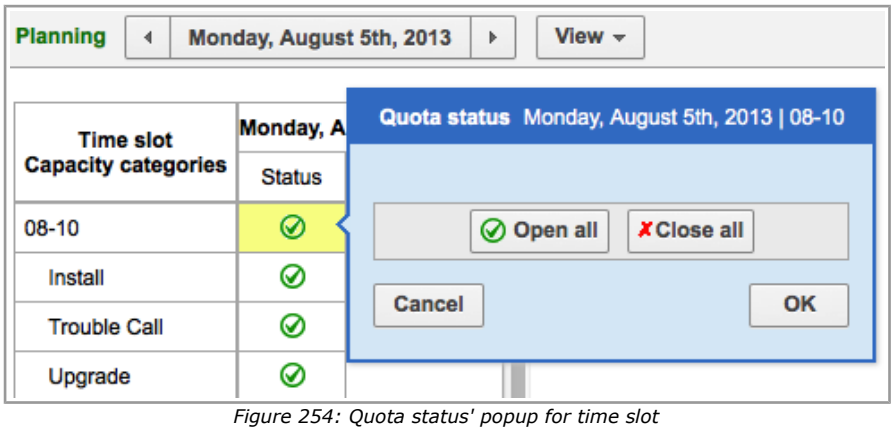


Figure 254: Quota status' popup for time slot

If the 'Close time' cell is clicked, the 'Close time' popup is opened (Figure 255). It allows setting the close time for the capacity category as well as for individual work zones.

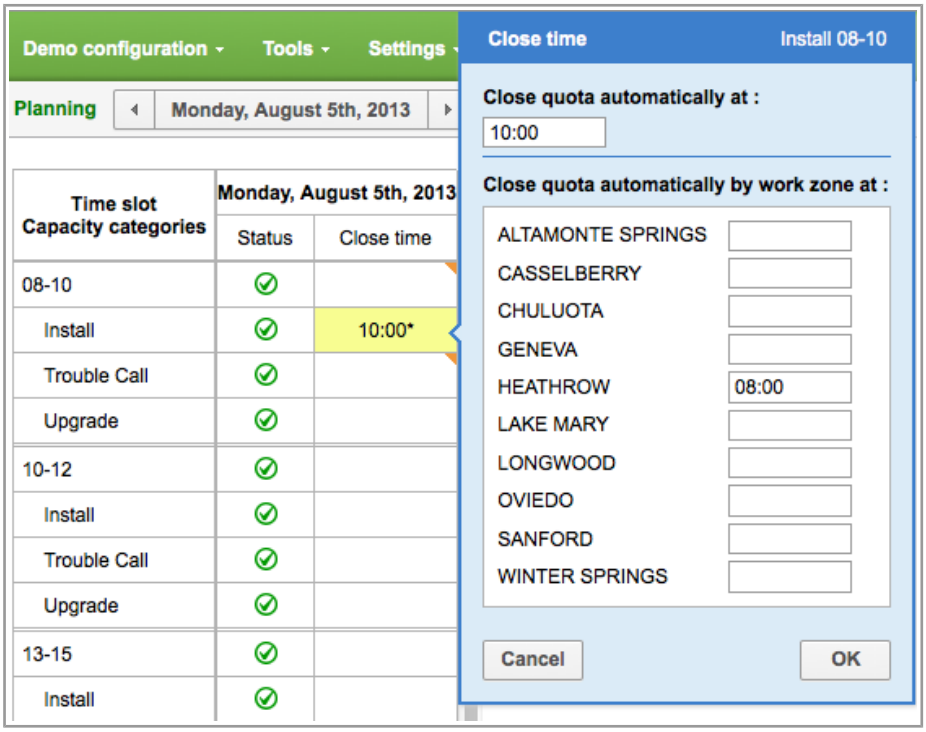


Figure 255: 'Close time' popup for capacity category

The popup opened on the day or time slot level has only one field to set close time for the selected day or time slot (Figure 256).

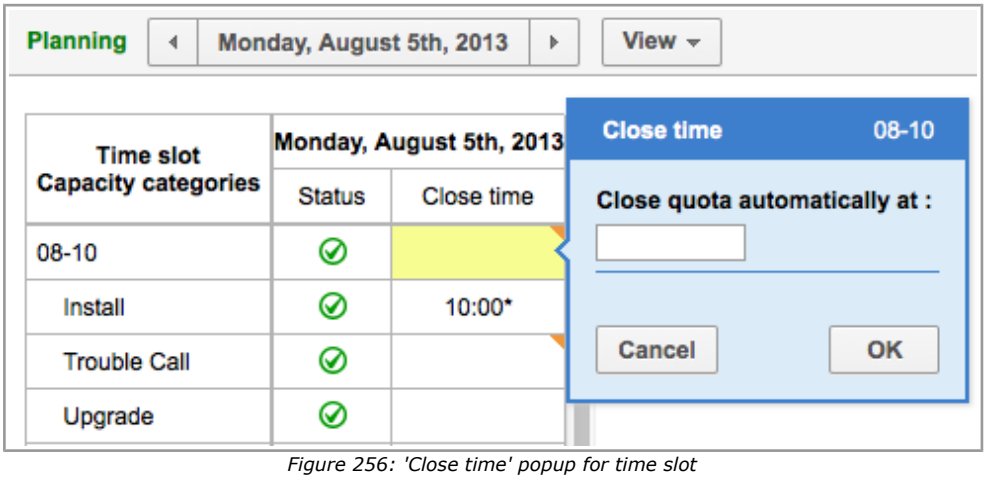


Figure 256: 'Close time' popup for time slot

6.13 SmartCollaboration

6.13.1 "User is typing..." Notification Introduced

As of version 4.5.4 the "USER_NAME is typing..." notification is displayed in the Community window whenever the other party in a conversation is typing a message. When several users are typing their messages simultaneously, the notification reads "USER_NAME_A, USER_NAME_B are typing..." (Figure 257).

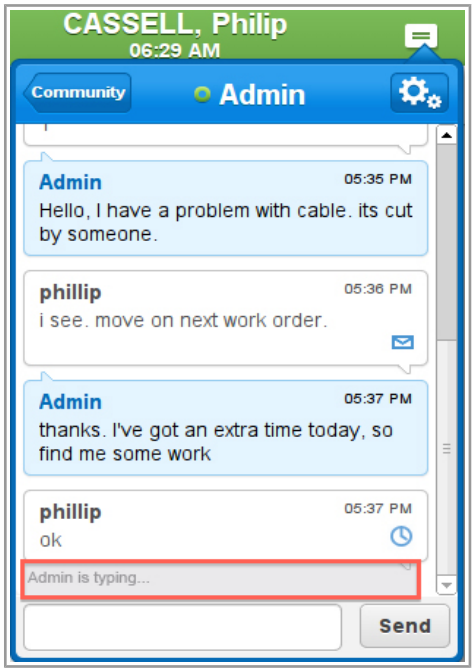


Figure 257: "User is typing..." notification in SmartCollaboration

Currently this new feature is offered for the Mobility Application.

6.13.2 New Algorithm Ensuring Message Delivery and Preventing Message Loss or Duplication

As of version 4.5.4 a new algorithm ensuing messages delivery to the SmartCollaboration server has been implemented as follows:

1. Add a custom field to each object before sending under the name "delivery_id" or similar
2. Send the object along with this field (by calling "send_message"/"start_chat"/"write_post")
3. Internally on epy client side mark this object as "sending"
4. If a response to "send_message"/"start_chat"/"write_post" has been received, mark the message as "unread". **exit**
5. If the connection was lost before the response was received then
   - Wait for the connection to be restored
   - Call the operation to get all objects of this type (for message: "get_chat_details", for chat: "get_status")
   - Check if an object with your "delivery_id" exists in the response
   - If it exists – mark your message as "unread" **exit**
   - If it does not exist – re-send and **go to step 2**

This algorithm has been developed to be used in the Mobility Application to ensure that no messages or commands are lost or duplicated.

6.13.3 Sound Notifications Introduced

SmartCollaboration usability has been significantly enhanced by adding new forms of message notifications. As of version 4.5.4, users can be alerted of incoming messages and new chats by sound,

vibration (for devices supporting vibration alerts) and system popups.

In addition to the visual notifications existing in SmartCollaboration, the user is notified by sounds of the following events:

- user is invited to a conversation or conference
- a new message is received in an inactive conversation window
- activity reassignment or inventory transfer is requested
- activity reassignment or inventory transfer is failed/cancelled/rejected
- new request is received by Helpdesk
- unanswered Helpdesk request is waiting

The sound notifications can be set in the 'My Display' screen. Three options are possible: Off, Quiet, Loud. By default, the sound notifications are set to 'Quiet'.

6.13.4 Message Statuses Implemented

In order to improve the usability of SmartCollaboration and to provide better possibilities of message delivery monitoring message statuses have been implemented in SmartCollaboration.

There are 3 possible statuses:

- sending (the message has not been delivered to the server)
- delivered (the message has been delivered to the server but has not been read by the recipient)
- read (the message has been viewed by the recipient)

Each message now has an icon showing its status in an easy and clear way:

	sending
	delivered
no icon	read

With the introduction of message statuses the conversation flow in SmartCollaboration can be easily monitored (Figure 258).

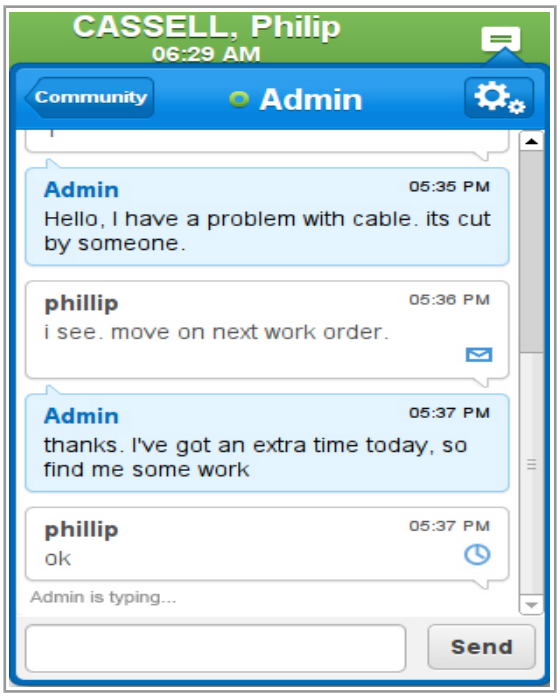


Figure 258: Message statuses in SmartCollaboration

6.13.5 SmartCollaboration Notifications Configurable through 'My Display'

As of version 4.5.4 the 'My Display' screen contains a new 'SmartCollaboration Notifications' section where the SmartCollaboration notifications settings can be individually configured by the user according to their preferences (Figure 259).

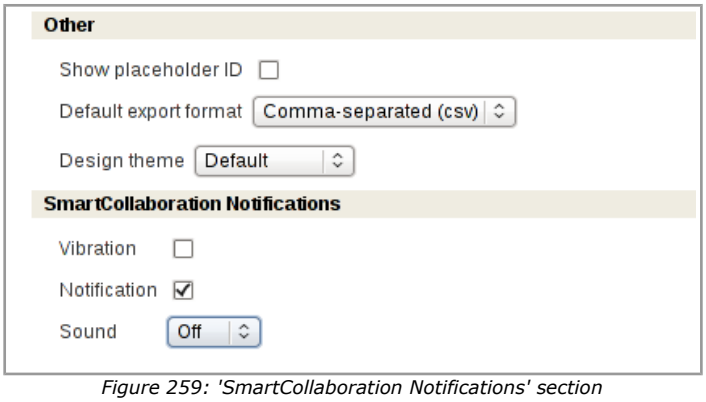


Figure 259: 'SmartCollaboration Notifications' section

This section contains 3 user-configurable fields:

- Vibration – a checkbox turning the vibration alerts on or off (for devices supporting vibration alerts)
- Notification – a checkbox turning on or off the popup message notifications in the system or browser
- Sound – a combobox allowing to turn sound notifications off or set their volume. Three options are possible: Off, Quiet, Loud.

6.13.6 Google Chrome, Chromium – SmartCollaboration Icon Visible

Sometimes, in the Mobility Application used in Google Chrome or Chromium, the SmartCollaboration icon was not visible on the screen. However, if the user clicked the place where the icon should be, the SmartCollaboration window opened (Figure 260).

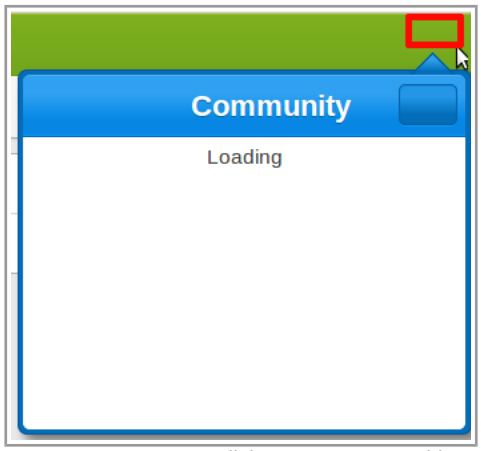


Figure 260: SmartCollaboration icon invisible

In version 4.5.4 this issue has been resolved. The SmartCollaboration icon is visible and functioning as intended.

6.13.7 'Reassign Activity' and 'Transfer Inventory' Actions Available

In the previous versions the 'Reassign Activity' and 'Transfer Inventory' actions were missing from the menu items list of the chat window both in the Manage and Mobility Applications with all applicable permissions set.

In version 4.5.4 the 'Reassign activity' and 'Transfer inventory' actions are available in the list of menu items when the corresponding permissions are set for the user.

6.14 Maps

6.14.1 Multihints Displayed Correctly

For certain addresses the Map View did not display multihints if several activities in the same route had the same address. The map only showed one hint.

This issue has been fixed now, and the Map shows multihints for addresses having more than one activity.

6.14.2 'Move' Dialog Window Shows Correct Date

Whenever the user opened the Map View for a future date, the same date was shown in the 'Move' window, when the user later tried to move an activity from List View in the lower pane to Map View in the upper pane. The 'Move' window would always show the initially selected date regardless of the user settings.

In version 4.5.4 the date used in the 'Move' action is the same as set in the activity view calendars.

6.14.3 Queue Reorder by Dragging and Dropping Improved

In the Map View activities could be reordered within a queue by dragging and dropping, except no activity could be placed first in the queue. The 'No movable activities selected' error message appeared whenever

the user tried to drag the activity to the first position in the queue.

The reason for such behavior has been identified and the issue has been fixed. Activities can be reordered within a queue, including their move to the first position in the queue.

6.14.4 iPad/Surface – Scale Rule Available on Screen

When ETAdirect was used on iPad in the Surface browser, the Map View displaying a route with resolved addresses had no scale rule. The user had to scale the map by sliding fingers.

This issue was caused by problems with Google Maps API in this browser. The options defining the scale rule appearance have been added. Now the map can be scaled both by finger sliding and by the scale rule.

6.15 Report Scheduler

6.15.1 Reports with Different Recurrences Logged in the Same Manner

When 2 reports schedules were created with different recurrences with the day of execution other than today, such report schedules created different entries in the log.

This was illogic and misleading, and the corresponding messages have been changed.Now such reports schedule create identical records in the log.

6.15.2 Recurrence Spelling Changed

The entries of the 'Recurrence' column' of the 'Schedule report' grid were spelt incorrectly (Figure 261).

The spelling has been changed to the correct one as follows (Figure 262):

- everyweek → every week
- everymonth → every month

1-2 of 2

	ID	Report name	Start Date	End Date	Report Type	Time	Recurrence	Action
☐	2	Activities by statuses	08/02/13	08/31/13	csv	12:00 Pacific Time	everyweek on Monday	Modify
☐	3	Number of active users	08/02/13		csv	12:00 Pacific Time	30, everymonth	Modify

Figure 261: Recurrence entries spelling before change

1-2 of 2

	ID	Report name	Start Date	End Date	Report Type	Time	Recurrence	Action
☐	2	Activities by statuses	08/02/13		csv	12:00 Pacific Time	every week on Monday	Modify
☐	3	Number of active users	08/02/13		csv	12:00 Pacific Time	30, every month	Modify

Figure 262: Recurrence entries spelling after change

6.15.3 All Mandatory Parameters Marked with Asterisks

Sometimes not all mandatory parameters were marked with asterisks in the 'Add schedule' window which made the dialog window less clear and understandable. When mandatory parameters were missing, the error message was displayed (Figure 263).

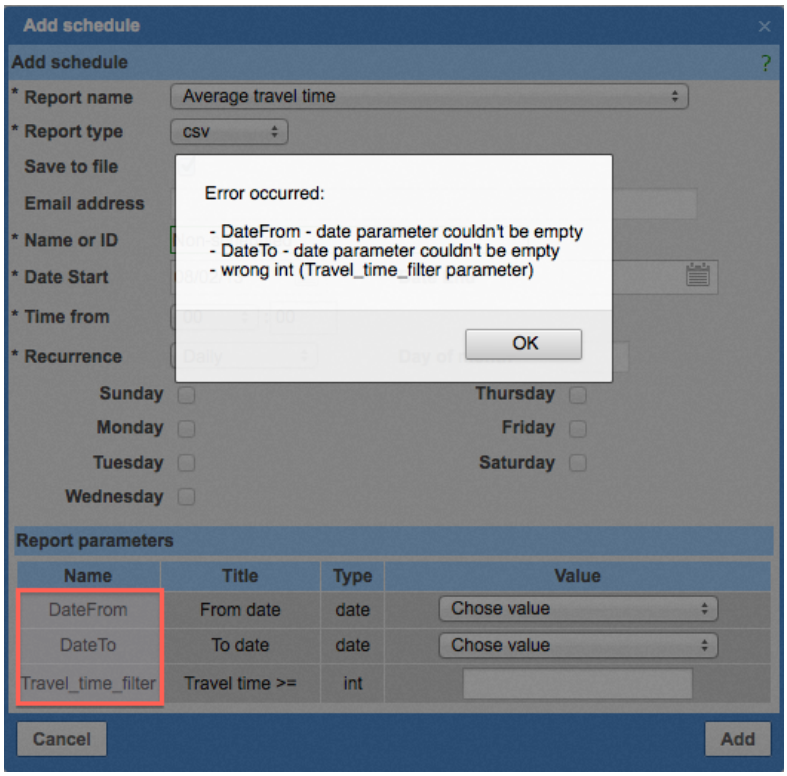


Figure 263: Mandatory parameters not marked

In version 4.5.4 all mandatory parameters in the 'Add schedule' window are marked with asterisks ('*') which makes the form clearer and easier to handle (Figure 264).

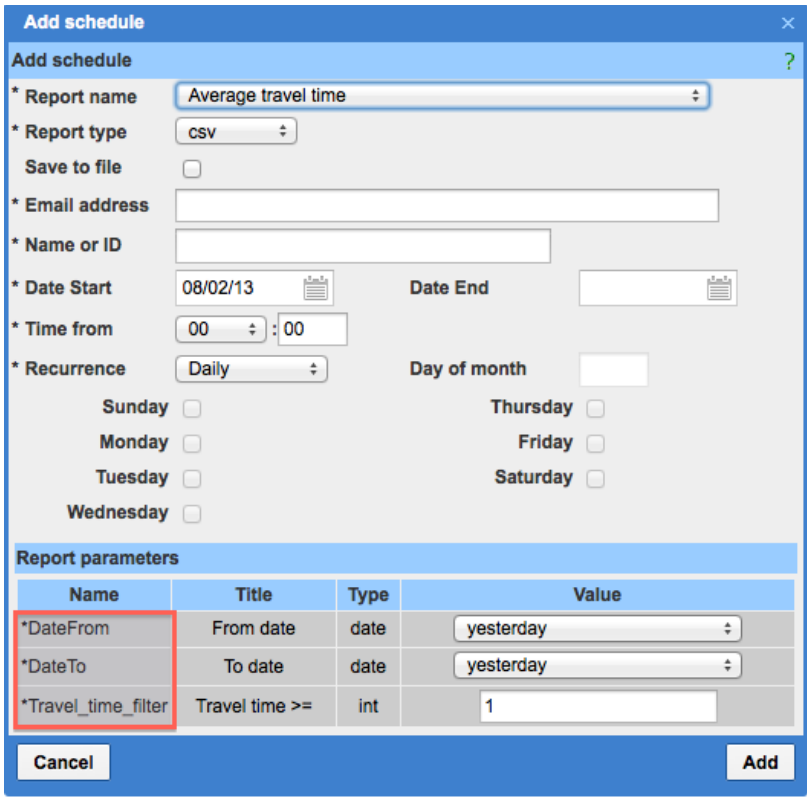


Figure 264: Mandatory fields marked with asterisks

6.15.4 Internet Explorer 7, Internet Explorer 8 – 'Add Schedule' Form Editing Improved

In Internet Explorer 7 and Internet Explorer 8 the 'Name or ID' and 'Email address' fields of a previously created schedule report became not-editable.

The procedure of report schedule management in Internet Explorer 7 and Internet Explorer 8 has been improved. All fields are available for editing, however, the 'Email address' field, by concept, is only editable when the 'Save to file' option is disabled.

6.15.5 Alert Message for Invalid 'Name or ID' Value Changed

The alert message displayed when the 'Name or ID' field was filled-in with an invalid value or left empty has been changed to a clearer one. The previous message read "Error occurred: - Name or ID is wrong" (Figure 265). Now the system responds with a "Resource's name or ID is empty or invalid" message (Figure 266).

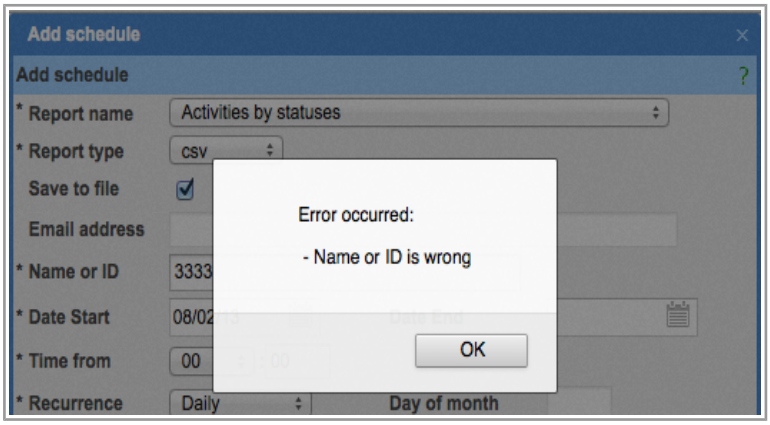


Figure 265: Error message before the change

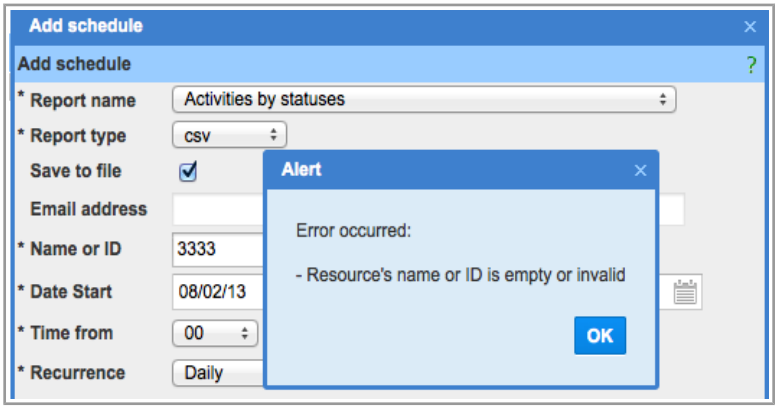


Figure 266: Error message after the change

6.15.6 All Report Formats Processed Properly

In the previous versions reports of html and xlsx formats caused fatal errors at time of generation. Errors appeared both for reports to be sent to email and saved to file.

As of version 4.5.4 this issue has been resolved, and reports of all types are generated with no errors.

6.15.7 'Statistics of Activities by Status' Report Calculated Correctly

Previously, the value of the 'Total' field of the 'Statistics of activity by status' report was calculated incorrectly – the resulting figure was not equal to the sum of the 'count' column values.

The total calculation has been improved, and now the 'Total' field shows the correct value.

6.15.8 Values of 'Work Order Statistics' Report Rounded Correctly

The total 'Avg time to complete (min)' value in the 'Work Order Statistics' report was shown rounded to one decimal point when displayed in the Manage Application. However, when the same report was sent via the agent, the total value was shown with much higher accuracy and a lot of decimal points.

This issue has been fixed. The decimal points in both reports are limited in a similar manner, therefore, both report now look the same.

6.15.9 Custom Report Displayed Completely

Previously, custom reports set up through the 'Report Scheduler' showed only 10,000 records regardless of the actual number of records in the particular report.

In version 4.5.4 no limits are applied to custom reports, and they are displayed completely.

6.15.10 Report Parameters Validation Improved

In some cases the system accepted reports with empty parameters while parameter validation should have been performed for possible values.

As of version 4.5.4 the parameters validation has been improved and functions as follows:

- Integer parameter cannot be empty and must be validated if a template exists for it
- String parameter can be empty and must be validated if a template exists for it
- Date parameter cannot be empty
- Enumeration value must be shown in a drop down list in the 'Parameters' section of the 'Set schedule' window

6.16 Displays

6.16.1 'Required Inventory Grid' Can Now Be Added to Context Layouts

As of version 4.5.4 the 'Required Inventory Grid' containing the data of required inventory of the selected activity can be added to the 'Edit/View activity' context layout. This is achieved by using the 'Add property' action link in the 'Edit/View activity' context layout structure and selecting 'Required Inventory Grid' (Figure 267).

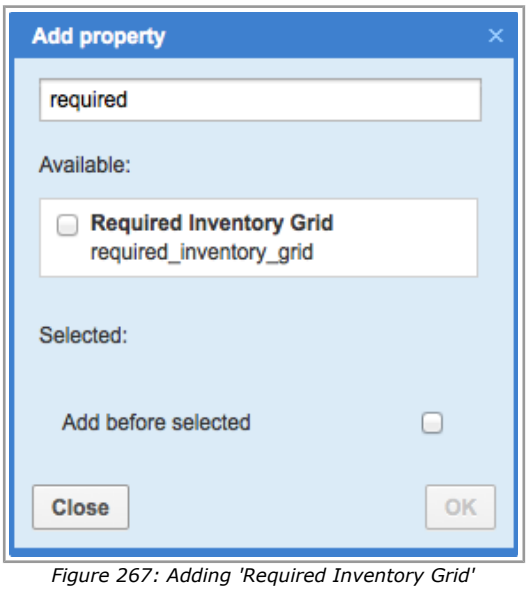


Figure 267: Adding 'Required Inventory Grid'

6.16.2 Inventory Features Can Be Used As Action Link Conditions

As of version 4.5.4 inventory features can be used as action link conditions defining their visibility. Particularly, the inventory feature 'is non-serialized' can be used as the condition for the 'Exchange inventory' action link. If inventory is defined as non-serialized, the 'Exchange inventory' link will be hidden, as non-serialized inventory cannot be exchanged.

6.17 Export/Import

6.17.1 Context Layout Item Type 'Grid' Added

As of version 4.5.4 a new context layout type 'grid' has been added to the Export/Import functionality.

The new item works similarly to the 'Predefined Tab'.

6.17.2 API Profiles Import Improved

No import of API profiles could be performed. The system displayed an "Operation is not permitted. Please relogin. If problem persists contact technical support" message, and the import was not processed.

This issue has been fixed, and now API profiles are imported properly.

6.17.3 New Logging Format for Display Profile Validation and Import

A new log format has been implemented for recording validation and import processes. The new format includes creation of log files at two stages of the process – validation and import.

The validation log includes the following items:

- list of layouts which can be fully imported
- list of layouts which can be imported but have incorrect data on some levels, e.g. items with incorrect label. In this case the layout will be imported without such items. The reason of the problem must be also tracked
- list of layouts which cannot be imported, e.g. the label of the context to which the current layout belongs to is absent in the system. The reason of the problem must be also tracked

The import log includes the following items:

- list of layouts which were fully imported
- list of layouts which were partially imported because of incorrect data on one of the levels
- list of layouts which were not imported

6.18 Mobility Application

6.18.1 Action Links Visibility Now Conditioned by Other Properties

In version 4.5.4 the Linked Properties functionality has been further enhanced, and now the visibility of action links (e.g. 'Start' or 'Cancel' for an activity) in the Mobility Application can be conditioned by the values of other properties. Their visibilities are set in the corresponding context layouts (Figure 268).

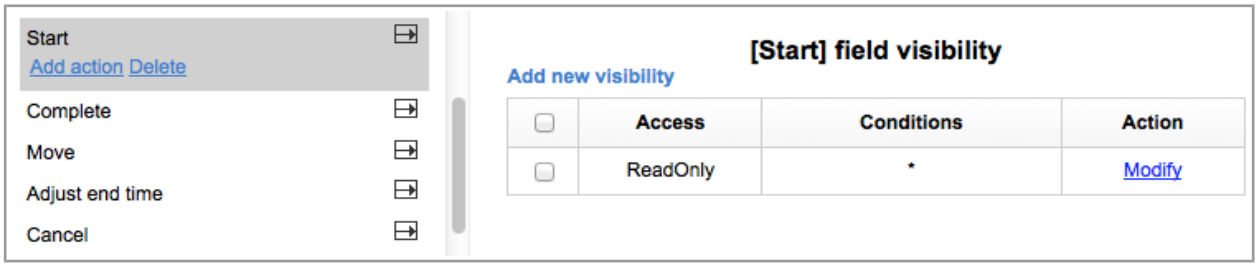


Figure 268: 'Start' action link visibility settings

The possibility of setting action links visibility depending on the values of other properties provides a flexible tool which allows to control compliance and continuous flow of activities. For example, a 'Start' link can be made ReadWrite only on the condition that the mandatory safety precautions have been checked.

6.18.2 Inventory Enhancements in the Mobility Application

With the enhancement of the inventory functionality, new inventory-relayed options have been

implemented in the Mobility Application. As of version 4.5.4 the 'Activity list' screen contains the 'Inventory' link which leads to the 'Inventories list' (Figure 269).

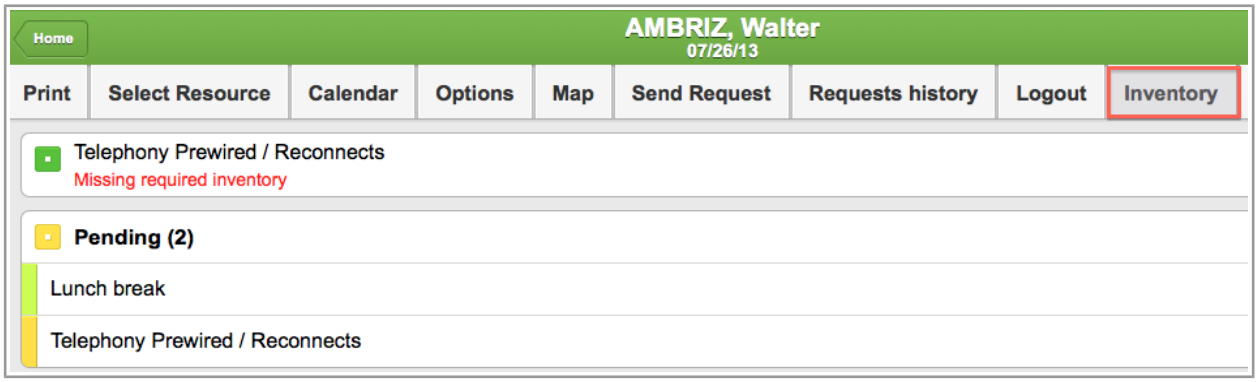


Figure 269: 'Inventory' link in 'Activity list'

The 'Inventories list' shows all inventory items in the resource's pool with a breakdown into groups by inventory type. Non-serialized inventory is displayed with a quantity. The list also includes the 'Required' section showing the inventory items required for any activities in the resource's route. Whenever any inventory is insufficient, a "Missing required inventory" warning message is shown (Figure 270).

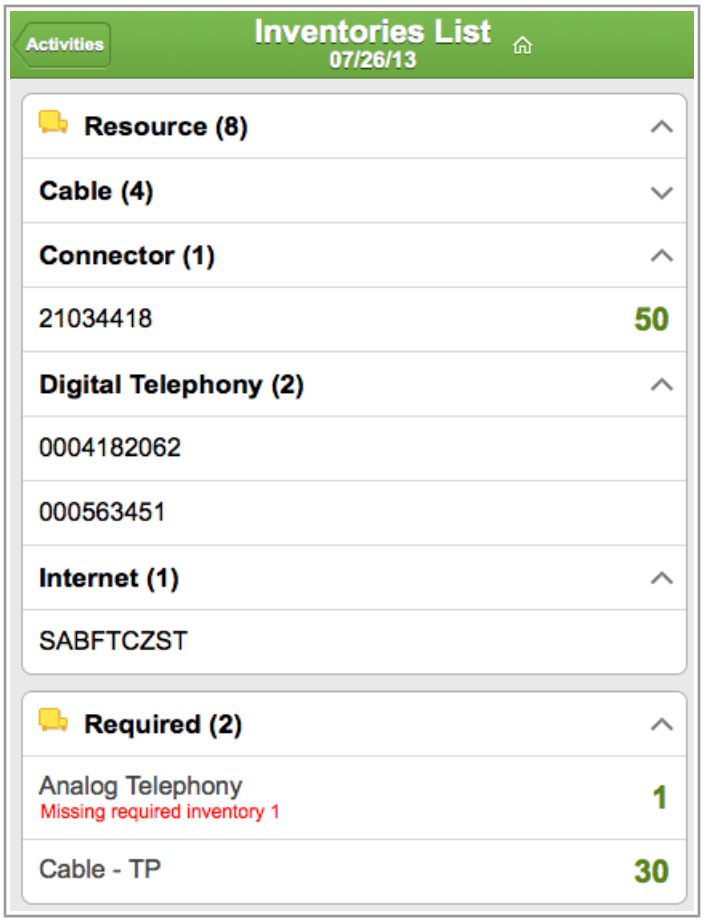


Figure 270: Inventories list

Tapping an inventory item in the 'Required' section leads to such inventory details which now have the

'Required for' section. This section shows the particular activity for which the inventory is required as well as the required quantity and the relevant warnings, if any (Figure 271).

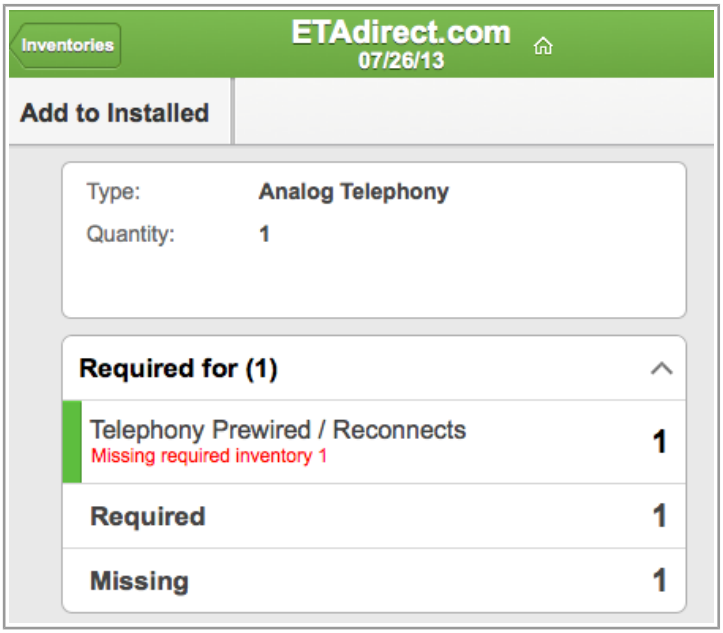


Figure 271: 'Required for' section

Required inventory can also be viewed for a particular activity. Whenever any required inventory is defined for an activity, such activity details screen has a 'Required Inventory' section listing the inventory required for such activity. The list shows the quantity of both serialized and non-serialized inventory, when applicable. If any required inventory is missing in the resource's pool, a corresponding warning message is shown in the list (Figure 272).

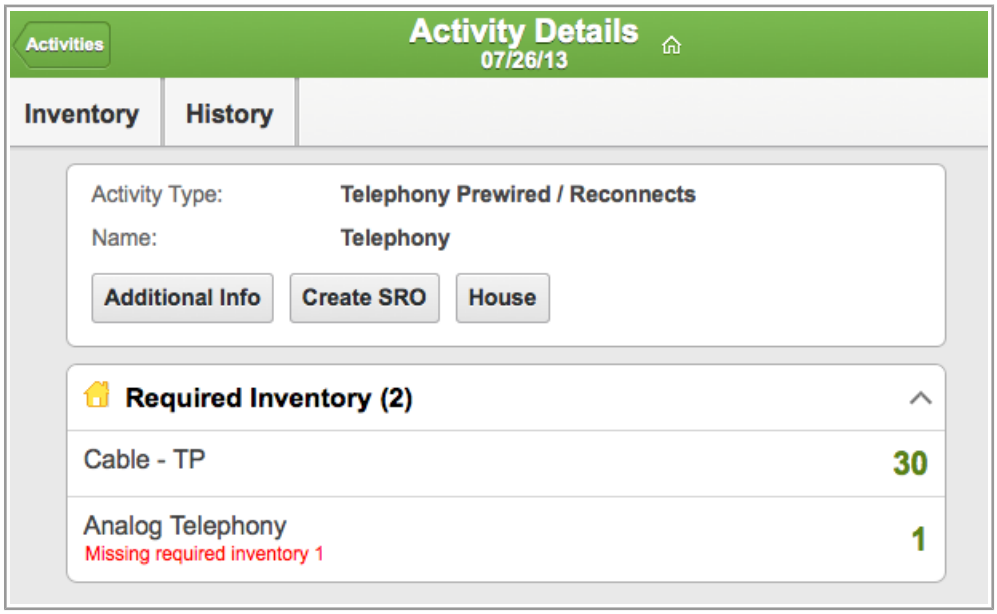


Figure 272: 'Required inventory' section in 'Activity details'

6.18.3 'Required Inventory' Grid Added

For the purposes of required inventory management in the Mobility Application, a new context layout item 'Required Inventory' of the "grid" type has been added (Figure 273).

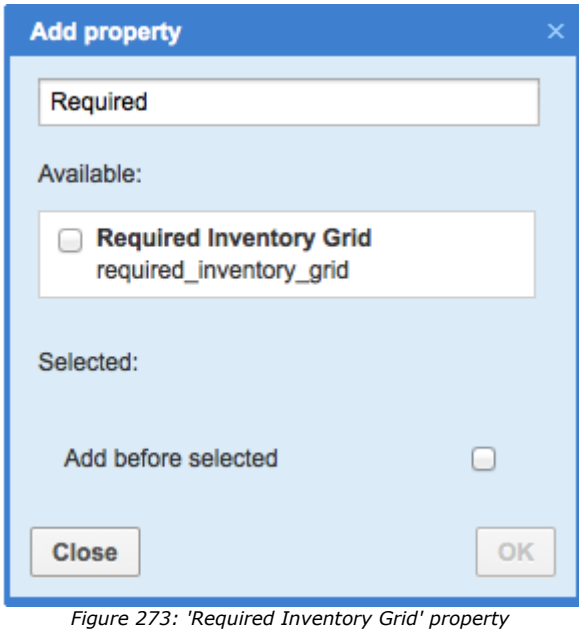


Figure 273: 'Required Inventory Grid' property

This item can be used both for the 'Activity details' and 'Activity list' contexts. Depending on the particular context, the grid shown either the required inventory for the selected activity, or the required inventory for all activities in the queue. In any case, it shows the required inventory type and model, the required quantity and the warning message if the required inventory is missing.

6.18.4 'Inventory Type' and 'Model' Parameters in 'Add to Installed/Deinstalled' Forms

With the introduction of the inventory type concept all inventory items in the system fall under any of the inventory types defined for the company. Optionally, model can also be defined for certain inventory types for deeper differentiation of inventory.

Therefore, the 'Inventory type and 'Model' parameters are shown on the 'Add to installed/deinstalled' forms in the Mobility Application, for which purpose the corresponding fields have been added to the forms (Figure 274).

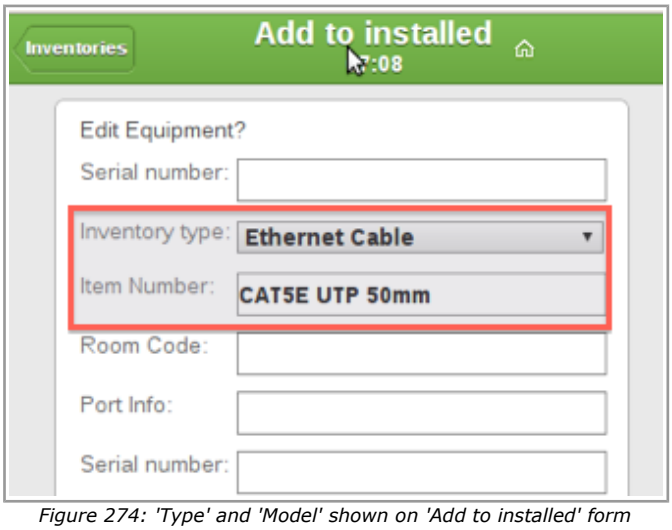


Figure 274: 'Type' and 'Model' shown on 'Add to installed' form

6.18.5 'Add to Installed' and 'Add to Deinstalled' Action Links Added

For the purposes of easier inventory management, the new 'Add to Installed' and 'Add to Deinstalled' action links have been added to the 'Inventories list' screen of the resource's queue. These links are visible when the today's queue is activated and there is a started activity in such queue, but its details are not opened. In this case these action links will lead to the 'Add to Installed' or 'Add to Deinstalled' forms of such started activity directly from the 'Inventories list' (Figure 275).

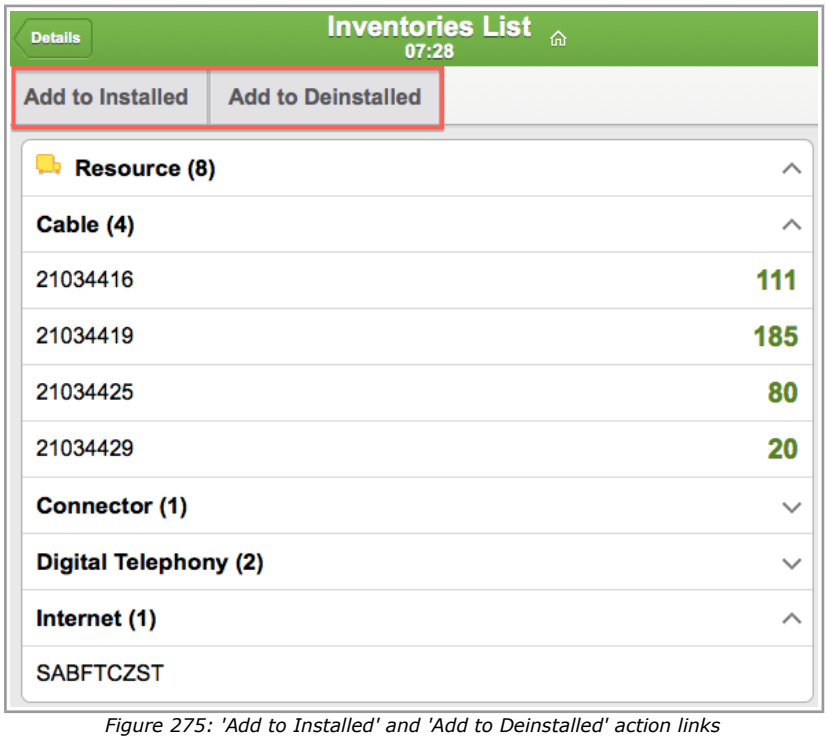


Figure 275: 'Add to Installed' and 'Add to Deinstalled' action links

6.18.6 Design Theme Setting from 'User Options'

Now the user can select the design theme directly from the Mobility Application. For that purpose the 'Design theme' combobox has been added to the 'User options' screen (Figure 276).

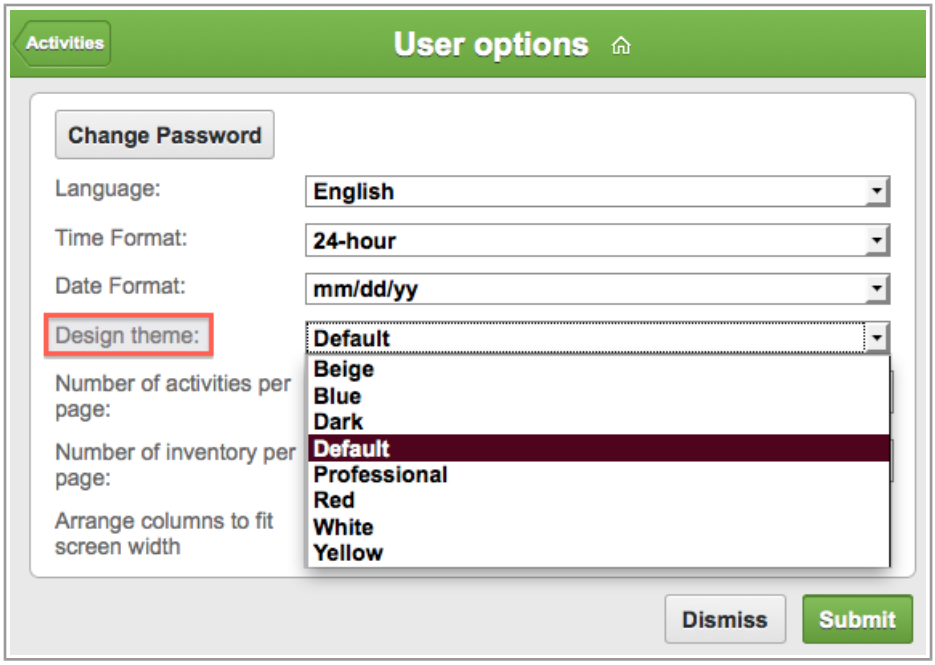


Figure 276: 'Design theme' combobox

The selected theme applies immediately after 'Submit' is tapped.

6.18.7 Activities with 'Support of Not-Ordered Activities' Disabled Can Be Moved to Bucket

- In the previous version any activities of the type with the 'Support of not-ordered activities' disabled could not be moved to buckets in the Mobility Application. No error messages were displayed and no errors were written to the log, but the activity was not moved.
- Another related issue was that on an attempt to move such activities to a bucket, the 'Back' and 'Dismiss' buttons in the move confirmation window were not working.

These issues have been resolved. Activities can be moved to bucket properly. The 'Back' and 'Dismiss' buttons, when tapped, return the user to the previously opened 'Move activity' screen.

6.18.8 Ordered Activities in Buckets Shown in Correct Color

An ordered activity moved to a bucket was shown in the color of not-ordered activity in the Mobility Application (Figure 277).

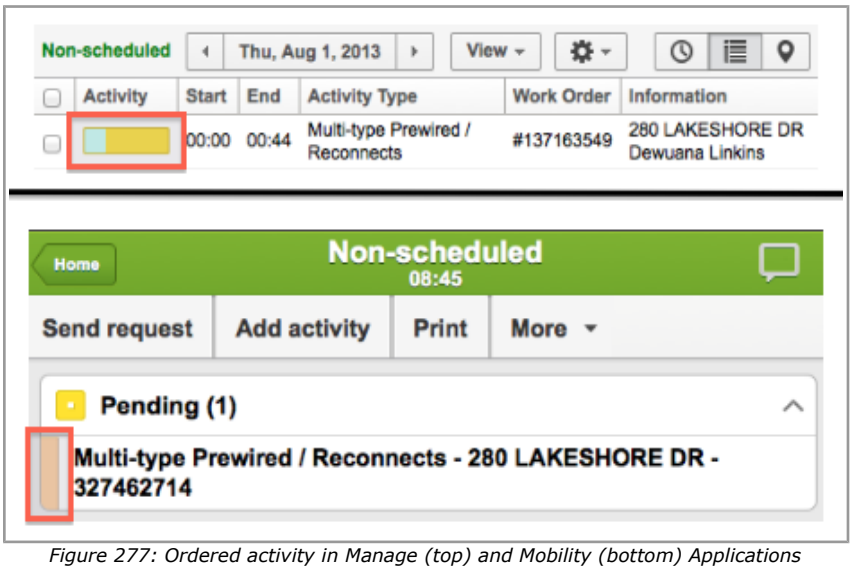


Figure 277: Ordered activity in Manage (top) and Mobility (bottom) Applications

The ordered activity check for buckets has been adjusted, and now ordered activities are shown in the correct color in both Applications.

6.18.9 Started Activities Shown in Correct Color in Offline Mode

In the previous versions an activity started in the offline mode was shown in the color of pending not-ordered activity and remained so even after being completed (Figure 278). The activity turned to the correct color only after the user went online.

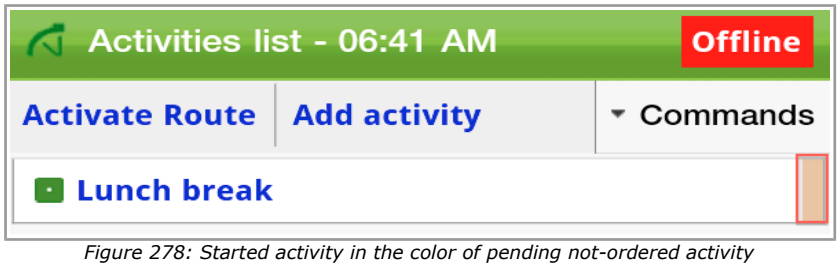


Figure 278: Started activity in the color of pending not-ordered activity

In version 4.5.4 this issue has been fixed. Activities are shown in colors corresponding to their actual statuses both in online and offline modes.

6.18.10 Synchronization of Mass/Repeating Activity Updates Improved

If properties of a mass or repeating activity were changed both in the offline mode in the Mobility Application and in the online mode in the Manage Application, 'Internal error. Please review your route.' message appears. After synchronization the Mobility user received the "Unable to change activity. Data has been changed. Please review your route." message (Figure 279).

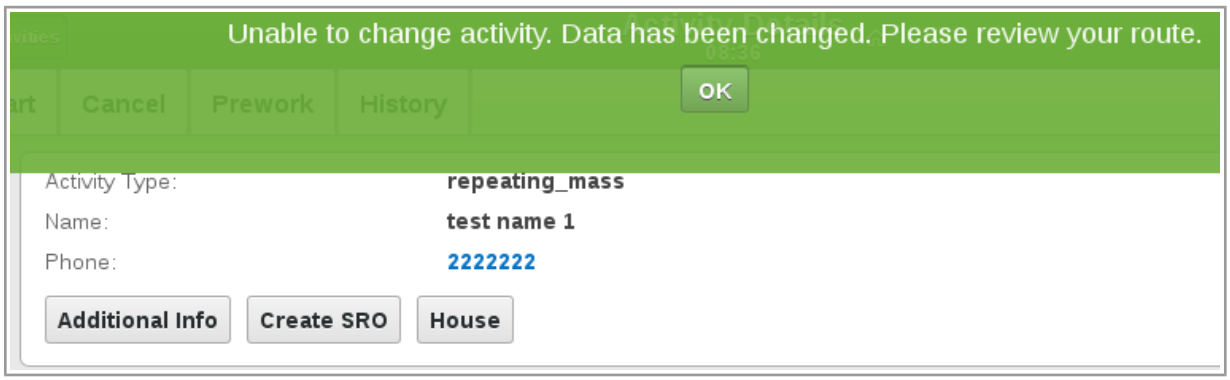


Figure 279: Error message after data change

6.18.11 'Service Unavailable' Message Displayed Correctly

If the application server was unavailable, the Mobility Application displayed an incorrect page instead of the standard message.

The necessary changes have been made, and now, if the application server is unavailable, the following text is displayed:

The site is temporary unavailable and will be back up in a few minutes.

We apologize for the inconvenience.

If you need immediate assistance please contact TOA Support at tech.support@toatech.com *or call +1 216 502 4351*

6.18.12 'Capture Image' Functionality Improved

- On iPad devices any line drawn on a photo taken or selected from those existing in the device, was actually drawn with a downward shift. The resulting image was not in the intended place. The issue has been fixed, and now any line drawn with a finger on the image appears exactly where it was drawn.
- It was impossible to clear drawings made on an existing image because the 'Clear' and 'Undo' buttons did not work.
  In version 4.5.4 the drawing clearing functionality has been restored. The buttons work as intended – 'Clear' removes all drawings from the image, 'Undo' clears the last drawn line.

6.18.13 Mandatory Fields Validation in Offline Mode Improved

When 'Serial number' was set as a mandatory field for the 'Add inventory' screen, this field was not validated in the offline mode. The inventory was added in offline with 'Serial number' empty, however, as soon as the user went online, the added inventory was rejected.

The inventory form validation function has been adjusted, and now empty mandatory fields are rejected in the offline mode, too.

6.18.14 'Activate Route' Action Link Hidden in Offline Mode

When a started activity was created in the offline mode, the 'Activate route' action link remained visible on the screen. Moreover, when the started activity was completed or set to not done, the 'Activate route' link was still displayed.

After the performed changes the route is activated automatically after a started activity creation in the

offline mode. The 'Activate route' action link is no longer displayed.

6.18.15 Overnight Mode Actions Improved

When overnight work is enabled for the company but the overnight time has elapsed, no activity actions are allowed. However, when a user attempted to cancel a past activity in the Mobility Application, no error messages were displayed and the activity was, in fact, cancelled.

This issue has been resolved. Now past activities cannot be cancelled, and the system responds with the "Unable to cancel activity. Action on past date is not allowed" error message.

6.18.16 Activity Move Functionality Improved

If a user assigned to a bucket attempted to move an activity from a technician to the bucket, the 'Select resource' link was missing from the screen (Figure 280).

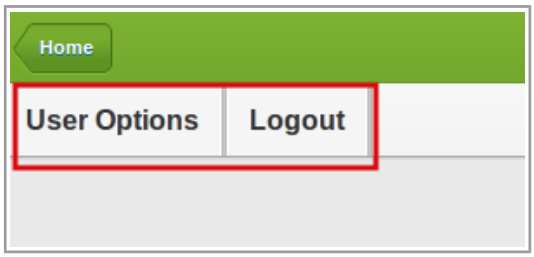


Figure 280: 'Select resource' link missing

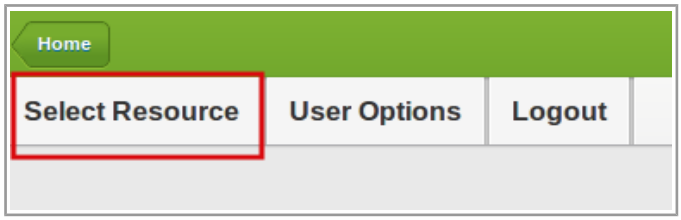


Figure 281: 'Select resource' link shown

The necessary changes have been made, and now, if a bucket contains more than one technician, the 'Select resource' link is shown after an activity move to such bucket (Figure 281).

6.18.17 Signatures for Repeating/Mass Activities Displayed

In the previous versions no signature images were displayed for repeating/mass activities. Only the link to the image file was displayed.

The repeating/mass activities processing in the Mobility Application has been improved, and now file properties are handled correctly. Signature images are displayed for such activities, as well.

6.18.18 Instance Name Used instead of Company Name

Now all public APIs including the SmartLocation API user instance name in the <company> field instead of the company name. However, the Mobility Application was sending the company name to SmartLocation instead of the instance name. Therefore, the coordinates sent in this manner were not shown on the map and, furthermore, could not be exported to the external system.

As of version 4.5.4 the Mobility Application sends the instance name instead of the company identifier in sending or getting GPS coordinates, which ensures the smooth data exchange with the API.

6.19 DWH

6.19.1 Instance Name Used to Get GPS Coordinates

With the change of authentication procedure in ETAdirect to use instance name instead of company name, DWH has also been changed accordingly. Now it also uses instance name instead of company name to get GPS coordinates from SmartLocation.

6.19.2 Empty Values Accepted in CSV Files

As of version 4.5.4 DWH accepts empty values in CSV files. This ensures backward compatibility with

previous versions where the 'atravelkey' and 'adurationkey' fields must be sent. These fields have been removed from DWH, however, to prevent errors, they can be sent with empty values.

6.19.3 'map' File Removed

As of version 4.5.4 the 'map' table has been removed from the database, and DWH no longer generates the 'map' file among the exported files.

6.20 Public APIs

6.20.1 Inbound API Changed to Support New Link Types

With the introduction of new activity links concept the Inbound API has been changed accordingly.
The 'links' node now has the following structure:

Name	Description
erase_links	empty node, indicating that all existing links to this activity should be erased Unchanged as compared to the previous versions.
link_start_together	creates a start-together (label) link where min_interval = 0 and max_interval = 0
link_start_after	creates a start-after (label) link where min_interval = 0 and max_interval = undefined
link	structure that contains the details of the linked activity, link type and intervals between the linked activities

'erase_links' node is always empty. 'link_start_together' and 'link_start_after' nodes contain activity key fields for the linked activity. 'link' structure contains activity key fields for the linked activity and the following elements:

Name	Description
link_type	label of the particular link type. The system allows to use the 'from' and 'to' type labels. This attribute is mandatory.
min_interval, max_interval	parameters defining the minimal/maximal time interval between the linked activities. These attributes are present or absent depending on the activity link type configuration

The existing 'link_start_after' and 'link_start_together' elements map to the link type labels created during migration. The following preexisting link types were added during migration to version 4.5: start-after, start-together, start-before.

6.20.2 Resource Preferences Handling by Inbound API Improved

The Inbound API was found to be unable to simultaneously delete resource preferences and to move the activity to a previously forbidden resource. In this case the resource preferences were not cleared, the activity was not moved, and the warning "Cannot add provider preferences: 'Cannot change preferences: assigned provider would be not in required list. ProviderID = 4000025'" was issued.
The Inbound API has been improved so that it can clear the existing resource preferences and simultaneously move the activity to a previously forbidden resource. No warning messages are issued for

such operations.

6.20.3 Inbound API – Inventory Type Label Used as Key

When a composite key was constructed with inventory type used as part of it, the inventory type label was ignored. If two inventories with the same 'invsn' but different 'invtype_label' values was sent, an error message was issued.

The Inbound API has been improved and now the inventory type label is used as a key field. The commands are processed with no errors.

6.20.4 Inbound API – Inventory Type Validation Implemented

Previously, the Inbound API processed inventory added with an invalid type ID or label incorrectly.

If an invalid type ID was specified, the inventory was added with the invalid type ID.

If an invalid type label was specified, the inventory was added with zero inserted instead of the type label.

After the API has been improved, in both cases described above inventory is rejected with an "Invalid inventory type label" or "Invalid inventory type ID" error message, respectively.

6.20.5 API's Use Instance Name instead of Company Name

Now all public APIs, including the SmartLocation API, use instance name in the <company> field instead of the company name. However, the Application Server was sending the company name to SmartLocation instead of the instance name. Therefore, the coordinates sent in this manner were not shown on the map and, furthermore, could not be exported to the external system.

As of version 4.5.4 the Application Server sends the instance name instead of the company identifier in sending or getting GPS coordinates, which ensures the smooth data exchange with the API.