



**ETAdirect Linked Properties
for**



Version 4.5
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Table of Contents

1	Introduction	4
1.1	Document Scope and Purpose.....	4
1.2	Basic Terms and Concepts.....	4
2	Getting Started.....	5
2.1	Linked Properties	5
2.2	Changes to Linked Properties.....	7
2.3	Access to Linked Properties	7
2.4	Display Profiles Configuration Changes.....	8
2.5	Field Visibility	9
2.5.1	Modifying Field Visibility	10
2.6	Value Visibility	12
2.7	Modifying Value Visibility.....	12
2.8	Submit Button.....	14
3	Example.....	14
4	Q & A.....	17

1 Introduction

1.1 Document Scope and Purpose

The main purpose of this document is to introduce the structure of Linked Properties feature, along with basic instructions on how to use it. This document will also concentrate on the changes that took place since the previous versions.

1.2 Basic Terms and Concepts

Here is a list of some basic terms and concepts that may be mentioned in the document, and will provide a better understanding of this feature. The reader, hereinafter, may be addressed as "you".

Term	Description
Activity	Any time-consuming work performed by a resource
Context	ETAdirect or API screen showing all available properties and action links
Context Layout	complete definition of a single screen
Delivery window	Statistically calculated time period in which a resource is expected to start an activity
Enum	ETAdirect field type, stands for enumerated type
ETA	Predicted time at which a resource will arrive to a customer and start an activity, calculated dynamically for current and historical data
Field	Property present in the system by default
GUI	Graphical User Interface, allowing people to use software by manipulating images rather than by issuing text commands
Linked Properties	ETAdirect feature that allows to set relations between properties and fields
Queue	List of activities assigned to a resource for a specific date, or a list of non-scheduled activities assigned to a resource
Resource	Element in the resource tree representing a defined company asset
Service Window	Time frame expected by the customer for an activity as scheduled by the company
User	1) Person using ETAdirect 2) Entity used for authentication and authorization, allowing people or external software to access ETAdirect
Work Skill	1) Activity that a resource is qualified to perform (resource property); 2) Qualification required to perform an activity (activity property)

2 Getting Started

2.1 Linked Properties

It is a known fact that after each appointment field service employees have to fill out a report sheet and describe the details of the completed work. This can be more challenging than it sounds, since a lot of things may be overlooked or forgotten which can cause problems for both technician and the company providing the service.

ETAdirect has come up with the solution which will help to avoid such unfortunate situations. It is called Linked Properties. Linked Properties is a feature that allows to set relations between properties and fields. Visibility and requirement depend on other property value. It provides a flexible form which gives out a set of preconfigured questions dealing with a nature of a particular task, rather than a number of generic questions.

Thanks to this new feature the following goals can be achieved:

- Save time
- Provide more accurate data
- Secure structure
- Improve customer service

This feature will also come in handy for jobs that require security regulations. Once the technician showed up at the place of work, he will get a set of questions-reminders before he proceeds, for example:

- Are you wearing a safety belt?
- Is the electricity disabled?
- Is the weather suitable?
- Do you need assistance?

Linked Properties feature will also help to remember to abide with the legal regulations in case signatures or agreements are needed to proceed with the work.

Here is an example that will help to better illustrate the concept of Linked Properties feature:

Technician has arrived to a client, in order to start working he needs to press start on his device

(Figure 1).

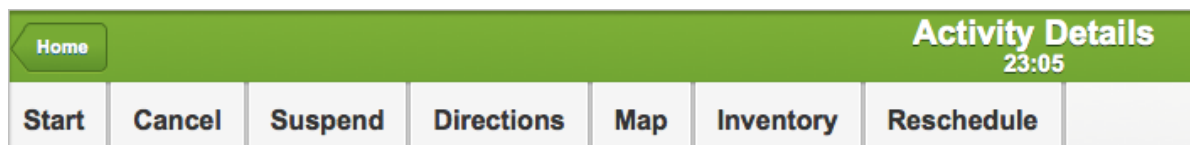


Figure 1: Starting activity

After that he will get a question inquiring about the place of an activity (Figure 2).

Work Order:	137165082
Name:	Samantha Keeney
Place of activity:	<div style="border: 1px solid black; padding: 2px;"> <div style="background-color: #0070C0; color: white; padding: 2px;">High-altitude work</div> <div style="padding: 2px;">In-house</div> <div style="padding: 2px;">Outside</div> </div>

Figure 2: Place of activity

Depending on the selected choice, a set of relative questions will appear. In our case, high-altitude work is involved, therefore safety precautions are required (Figure 3). Even if the technician forgot to wear a safety belt, or check whether the electricity is shut off in order for him to safely perform his job, these questions will also serve as reminders.

Place of activity:	High-altitude work
I wear special safety belt:	<input checked="" type="checkbox"/>
Made sure the electricity is off:	<input checked="" type="checkbox"/>
The weather is suitable:	<input checked="" type="checkbox"/>
I used colleague assistance:	<input type="checkbox"/>
I know the risks:	<input checked="" type="checkbox"/>
<input type="button" value="Dismiss"/> <input type="button" value="Submit"/>	

Figure 3: Safety questions

After the form has been completed, the technician will see a summary pop-up on his screen (Figure 4).

Status:	Started
Work Order:	137165082
Activity Type:	regular
Work Type:	Video SRO
Time Slot:	15-17
Delivery Window:	22:45 - 00:00
Start:	23:23
End:	00:00
Duration:	37 min
Traveling Time:	13 min
Start - End:	23:23 - 00:00
Coordinate X:	-81.21879
Coordinate Y:	28.67977
Service Window:	15:00 - 17:00
<input type="button" value="House"/> <input type="button" value="Agreement"/> <input type="button" value="Create SRO"/>	
I wear special safety belt:	On
I know the risks:	On
Made sure the electricity is off:	On
The weather is suitable:	On

Figure 4: Summary

2.2 Changes to Linked Properties

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

The new feature provides flexible configuration, 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 Condition' button, which, when clicked reveals the variety of conditions.

2.3 Access to Linked Properties

In order to start setting up linked properties, the following route needs to be followed.

On the ETAdirect main menu, in Manage Application, after clicking in Company Settings, drop-down menu will appear, select Display (Figure 5).

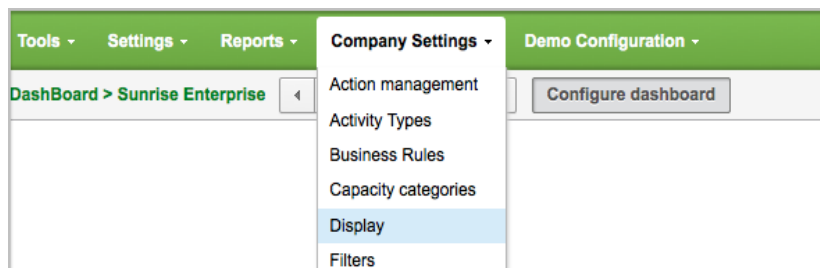


Figure 5: Company Settings drop-down menu

Once redirected to the Display settings, select the needed display profile (Figure 6) and double-click on it to proceed.

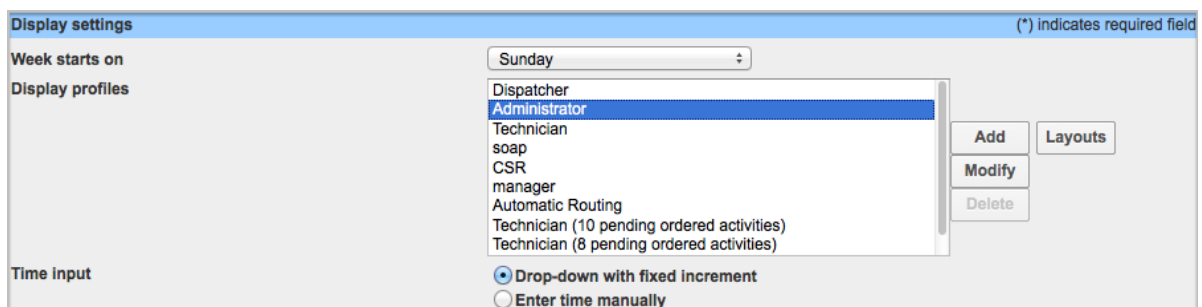


Figure 6: Selecting display profile

This action will redirect you to the context layout list, where necessary context can be selected (Figure 7). Click 'Structure' to proceed (Figure 7).

Context ↑	Entity	Interface	Context type	Also used in	Action
Activity details in chat	activity	*	identifier		Add new
Activity fields for export	activity	WEB	grid		Edit Clear Structure
Activity List	activity	Mobile	grid	Dispatcher; manager; Technician; Technician (10 pending ordered activities); Technician (2 pending ordered activities); Technician (8 pending ordered activities)	Edit Clear Structure
Activity plugin	activity	Mobile	fieldset		Add new
Activity time view label	activity	WEB	identifier		Add new
Add Activity	activity	Mobile	form		Edit Clear Structure
Add Activity/Activity Details	activity	WEB	form		Edit Clear Structure

Figure 7: Context List

2.4 Display Profiles Configuration Changes

After being redirected to the context structure screen, visibilities can be set for the selected properties. Please note that in this document only certain properties are used to demonstrate the functionality.

The layout structure column, which appears on the left side of the screen includes the list of properties which appropriate visibility setting can be applied to (Figure 8).

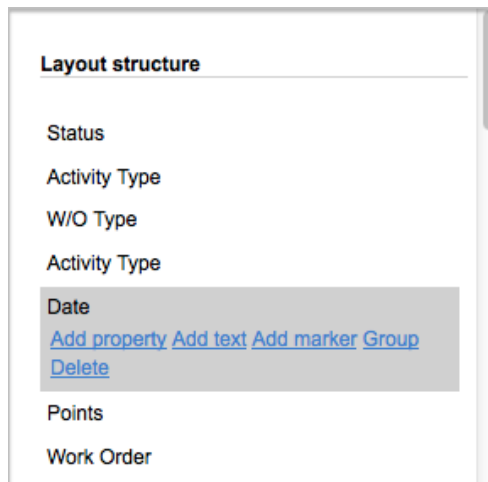


Figure 8: Layout Structure

If there are properties that are not listed but need to be added to the layout structure, click 'Click to add' button at the bottom of the list (Figure 9).



Figure 9: Click to add button

Once clicked, another window with the list of additional properties will appear (Figure 10).

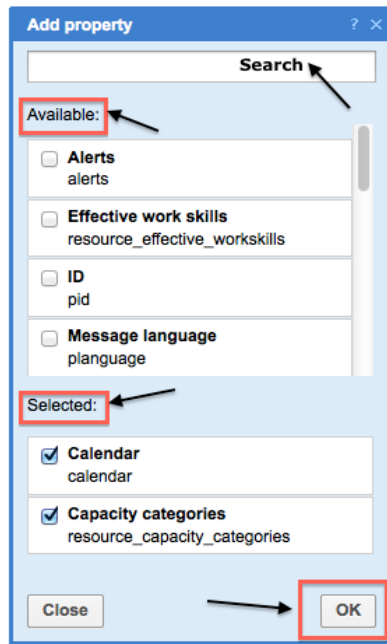


Figure 10: Adding properties

Selecting a checkbox next to a particular property will add it to the layout structure list. Checked properties will appear at the bottom of the pop-up window and will be labeled "Selected". The choices can naturally be modified. Click OK upon completion.

2.5 Field Visibility

Now that all the preliminary preparations have taken place, visibility for the selected field can be set up. Here is how this process works.

In the layout structure column, select a property to add visibility to, click on it and its detail information will appear (Figure 11) along with the field visibility table on the right side of the screen (Figure 12).

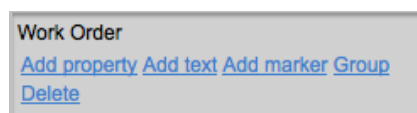


Figure 11: Property Options

The section right above the Field Visibility table allows to set up how the names will be displayed in different languages.

Access and conditions of a particular field visibility can be modified. In order to do that, click 'Modify' in the Action column of the field visibility table.

2.5.1 Modifying Field Visibility

After clicking "Modify" field visibility modal window appears, where a user can edit the rules (Figure 12, 13).

Name	Original name	Field label:
English	Work Order	appt_number
Spanish	Numero de cita	Field gui:
French	N° de rdv	text
Dutch	AO nummer	
German	Terminnummer	
Romanian	Număr Întâlnire	
Russian	Заказ (номер)	
Portuguese		

Save name Use original name

[Work Order] field visibility

Add new visibility

<input type="checkbox"/>	Access	Conditions	Action
<input type="checkbox"/>	ReadWrite	Activity Type in (equal) Customer, Status in (equal) Pending	Modify
<input type="checkbox"/>	ReadOnly	Activity Type in (equal) Customer	Modify

Figure 12: Field Visibility

[Work Order] field visibility

With 1 selected: [Delete](#) [Add new visibility](#)

<input type="checkbox"/>	Access	Conditions	Action
<input checked="" type="checkbox"/>	ReadWrite	Activity Type in (equal) Customer, Status in (equal) Pending	Modify
<input type="checkbox"/>	ReadOnly	Activity Type in (equal) Customer	Modify

Figure 13: Modifying Field Visibility

NOTE: after making any changes to the field visibility, it is necessary to press the 'Recalculate Structure' button (Figure 14) at the right bottom corner of the page, in order to refresh data.

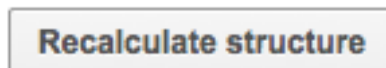


Figure 14: Recalculate Structure button

Field visibilities can be modified, added, or deleted. The "Add new visibility" link allows a user to add and configure new visibility rules. When clicked on, the following window will appear (Figure 15).

[Position In route] field visibility

Field is: ReadOnly ReadWrite Mandatory

There are no conditions

[Add new condition](#)

Cancel Save

Figure 15: Add new visibility

ReadOnly field – is displayed as text, and serves a purely informational purpose

ReadWrite field – may be filled out or left empty

Mandatory field – this field has to be filled out. The form will not allow to send data if this field is empty.

Once “Add new condition” is clicked, the following window with a list of conditions pops up (Figure 16).

NOTE: The 'default visibility' is different in the following cases:

-If no conditions are selected, then the field visibility is '*' (e.g. Read/Write without any conditions, in other words - always);

-If the existing conditions are not met, then the field visibility is 'invisible' (e.g. Read/Write on some conditions, otherwise invisible).

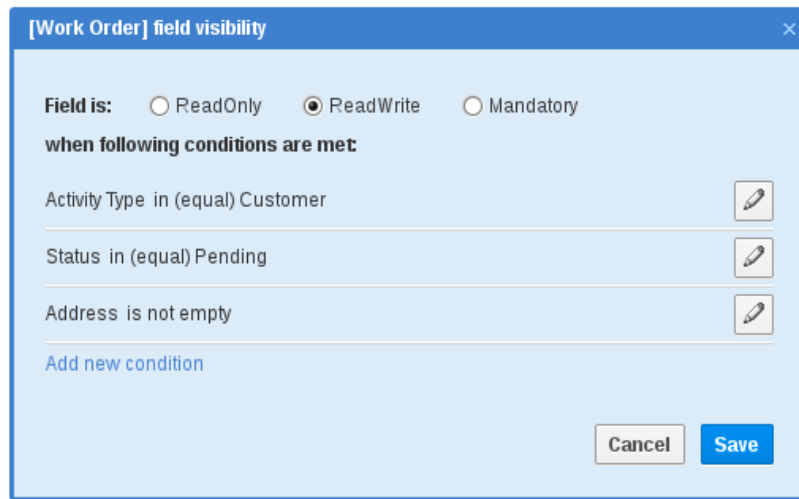



Figure 16: Add new condition

Pressing the pencil link  will allow to modify the conditions on the spot (Figure 17). Please note, that once one pencil link is pressed, other conditions are hidden, since it is only possible to edit only one at a time (Figure 17).

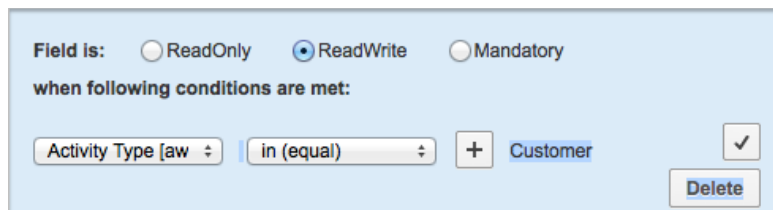



Figure 17: Editing Conditions

Once all the necessary changes have taken place, press the check button  for them to apply.

NOTE: The changes will not be saved unless the Save button is clicked (Figure 16).

Such visibility conditions can also be applied to actions, predefined tabs, etc.

2.6 Value Visibility

In order to access the table with value visibility, the property needs to have “enum” type.

To modify value visibility, same route as for field visibility applies:

Company settings > Display > Administrator (or any other display profile) > Context > Layout structure.

This table appears only for combobox fields. It allows to set visibility for each combobox option. The table shows properties, which current property options depend on. The rules can be added, modified, and deleted (Figure 18).

[Item Type] values visibilities			
Add new value visibility			
<input type="checkbox"/>	Value	Conditions	Action
<input type="checkbox"/>	Terminal	Item Category in (CDMA, PSTN)	Modify
<input type="checkbox"/>	IPTV_HDD	Item Category in IPTV_STB	Modify
<input type="checkbox"/>	IPTV_ZAPPER	Item Category in IPTV_STB	Modify
<input type="checkbox"/>	PVR	Item Category in DTH_STB	Modify
<input type="checkbox"/>	SD	Item Category in DTH_STB	Modify
<input type="checkbox"/>	ZAPPER	Item Category in DTH_STB	Modify
<input type="checkbox"/>	MODEM Huawei	Item Category in xDSL_CPE	Modify

[Recalculate structure](#)

Figure 18: Value Visibilities

If there is a star (*) sign in any of the fields, this means that all value options are visible and there are no predefined conditions (Figure 19).

[Inventory type] values visibilities			
Add new value visibility			
<input type="checkbox"/>	Value	Conditions	Action
<input type="checkbox"/>	*	*	Modify

[Recalculate Structure](#)

Figure 19: Value visibility: all options available

Visibility does not need to be dependent on any properties, so it will always be visible if no conditions are set, taking into consideration access limitations, of course.

2.7 Modifying Value Visibility

Current field options can depend on other property values.

If no options are selected, all conditions apply to every option. If conditions are not selected, options will be always visible.

To modify the Value Visibility, click on Add New Value Visibility (Figure 20).

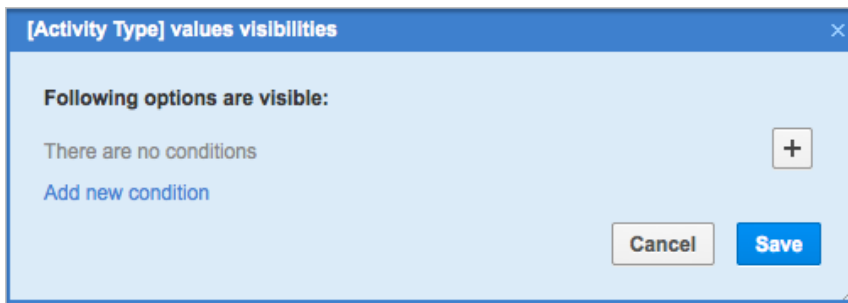



Figure 20: Modifying value visibility

Clicking on the  button will reveal the list of enum property values for which special visibility conditions can be added:

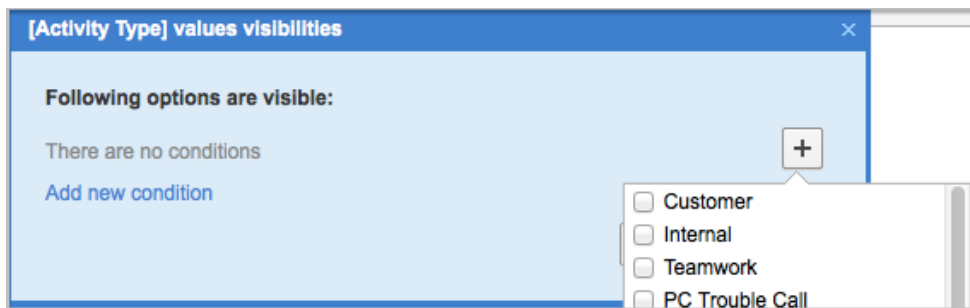


Figure 21: List of available enum property values

To add a new condition, click "Add new condition" and the the following pop-up window will appear (Figure 22).

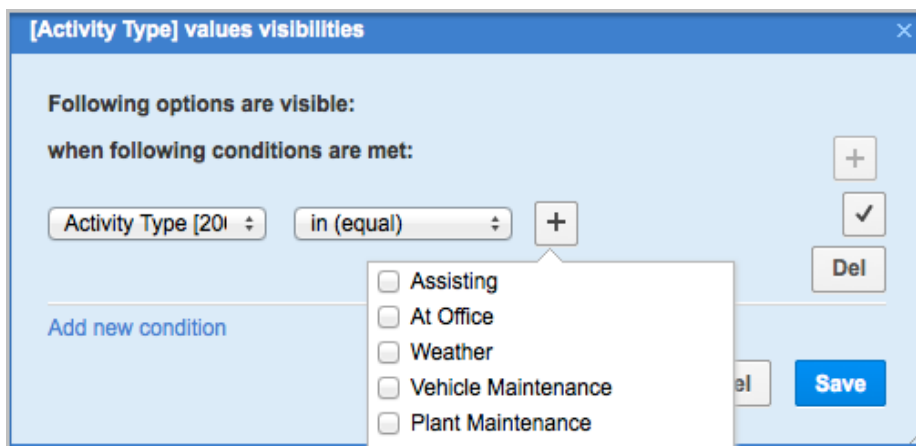


Figure 22: Adding new condition

Once all necessary conditions and options have been selected, click "Save". After being redirected to the

main screen, click 'Recalculate structure' to refresh data.

2.8 Submit Button

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 23).



Figure 23: 'Buttons' in context layouts

Now the 'Submit' button can be enabled or disabled depending on the values of other properties by means of the Linked Properties functionality (Figure 24).

[Submit] field visibility			
Add new visibility			
<input type="checkbox"/>	Access	Conditions	Action
<input type="checkbox"/>	ReadWrite	*	Modify

Figure 24: 'Submit' button visibility configuration

Default visibility of usual fields is invisible, but for submit buttons default visibility is active (ReadWrite), so rules and priorities are as follows:

If there are no visibilities for submit button it is shown as Active.

If there are visibilities for submit button and ReadWrite visibility condition is set, button is shown as Active.

If there are visibilities for submit button and ReadOnly visibility condition is set and ReadWrite is not set (or there are no other ReadWrite conditions), the button is shown as Disabled.

If there are visibilities configured, but no visibility conditions are set, the button is Active.

3 Example

The example below will allow to better illustrate Linked Properties settings in action (Figure 25).

[Activity Notes] field visibility			
Add new visibility			
<input type="checkbox"/>	Access	Conditions	Action
<input type="checkbox"/>	ReadOnly	*	Modify
<input type="checkbox"/>	ReadWrite	Message language in (equal) Spanish	Modify
<input type="checkbox"/>	ReadWrite	Name contains Nick	Modify

Figure 25: Example

In a given example, it is apparent that the ANotes property has default visibility as ReadOnly, unless it contains the name Nick or language Spanish.

Here is how the user viewing Activity details will see it, if no specified conditions are met (Figure 26).

The screenshot shows a user interface for activity details. At the top, there are fields for Status (Pending), Activity Type (HSD / High Speed Data install), W/O Type (DI), Work Order (#137165121), and WO Comments (eeeeqqeee). Below these are Name (Jenna) and ANotes (qwerty). The ANotes field is highlighted with a red box and labeled 'ReadOnly' with a red arrow. Below the ANotes field are tabs for Customer info, Service info, Equipment, Provider Preferences, Messages, History, and Links. Under the Service info tab, there are fields for Address (1965 DEERVIEW PL), City (LONGWOOD), State (FL), ZIP (327504580), Account Number (019942928), Time Zone (Eastern), Message language (English), Reminder (60), Phone (555760757382), and Send day before confirmation alert (checkbox). The 'Message language' field is also highlighted with a red oval.

Figure 26: Conditions are not met

Evidently, the ANotes field is ReadOnly since this was set as default in case predefined conditions are not met.

This is how the user viewing Activity details will see it if at least one specified condition is met (Figure 27)

Status	Pending	Position in route	At the end	Work Zone	LONGWOOD
Activity Type	HSD / High Speed Data install	Time Slot	13-15	Work Skill	Deinstall(1/1)
W/O Type	DI	Delivery Window	14:15 - 15:30		
Work Order	#137165121	Start - End	14:49 - 15:21		
WO Comments	eeeeqqe	Duration	32min.		
Name	Nick				
ANotes	qwerty				

ReadWrite

Customer info | Service info | Equipment | Provider Preferences | Messages | History | Links

Address	1965 DEERVIEW PL	Time Zone	Eastern	Coordinate Status	found
City	LONGWOOD	Message language	Spanish	Coordinate X	-81.36077
State	FL	Reminder	60	Coordinate Y	28.72427
ZIP	327504580	Phone	555760757382		
Account Number	019942928	Send day before confirmation alert	<input type="checkbox"/>		

Figure 27: Conditions are met

It is obvious that the ANotes field is open for editing when either name Nick is present, or the message language is set to Spanish.

4 Q & A

Q: *I cannot see the field on the final form after configuring all the settings. What do I do?*

A: If you cannot see a field on the form, please make sure you have done the following:

1. Permissions

You need to see if you have the right permissions to view any given field.

2. Display

- Go to settings and see if you have the appropriate display profile set up
- Make sure you have correct interface and context set up.

3. Check your visibility settings and the fields they depend on

If the property has the enum type, then check its visibility value. If it doesn't have a visible value, then the field will be invisible.

Please make sure you have pressed "Recalculate Structure" after making any changes. If you are not sure, press it again and it will refresh your data.

Q: *How come "Activity Status" is changed to "Status" automatically?*

A: In previous versions the field was called "Activity Status". Starting in 4.5.0 the names are taken directly from properties, thus the name change. If you want to keep the old name, or give it any other name, go to company settings > properties and change it there.

Q: *Why do the forms look different?*

A: In previous versions the system allowed to form incorrect dependencies, so the properties were always visible.

In version 4.5. we make sure to check property conditions and specify whether a particular property exists. This is why, as a result of incorrect dependencies from the previous versions, the forms may look different.

Please go to properties and set them up manually.