



FEDERAL PROJECT MANAGEMENT UNIT
FEDERAL WATER MANAGEMENT CELL
MINISTRY OF NATIONAL
FOOD SECURITY & RESEARCH
ISLAMABAD - PAKISTAN

NATIONAL PROGRAM FOR IMPROVEMENT OF WATERCOURSES IN PAKISTAN PHASE-II: (NPIWC-II)

MONITORING, EVALUATION AND IMPACT EVALUATION CONSULTANTS



ANDROID APPLICATION MANUAL

VERSION 1.0



A Joint Venture of
G3 Engineering Consultants (Pvt.) Ltd.
Lead Firm



EASE-PAK

ADA
Consultants Inc.

In Association with S&S Associates

ANDROID APPLICATION MANUAL

(Special Report)

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1. INTRODUCTION

The Government of Pakistan is implementing a project entitled “National Program for Improvement of Watercourses in Pakistan Phase-II (NPIWC-II) at a total cost of PKR 154,542.355 million (Umbrella PC-I) over a period of 05 years.

This project will cover Punjab, KP, Balochistan and Gilgit Baltistan, Azad Jammu & Kashmir as well as Islamabad Capital Territory (ICT). The proposed project Phase-II will be beneficial for the country.

The general scope of the ME&IE Consultants services is to:

- Monitoring of project activities
- Monitoring, Evaluation, and Impact Evaluation of the project performance
- Carrying out ME&IE studies to evaluate the impact of the interventions for meeting the project objectives.
- Assessing water losses, crop yield and economic impact of the project
- Design, develop and maintain a Management Information System (MIS) for ME&IE including establishment of a Spatial Database. All the data collection will be done through tabs/smart phones with the help of an android-based application developed by ME&IE Consultants.

2. ANDROID APPLICATION

Android application designed and developed to capture data in the form of images, signatures, geolocation etc. It's a vital part for real time progress monitoring. Data will automatically sync to the cloud-based server, or users can opt to manually sync the data at any time. The application provides the ease to work in offline mode for data collection. After the collection of data from the field, field office can save the form at any stage and can review the saved form later in-case of any mistake, correction, and updation of the data.

The database of captured data and the data processing through the MIS software can facilitates the planning and the monitoring, evaluation of the Project. MIS is a web-based monitoring information systems. It is a custom tailored developed and designed for the NPIWC Phase-II project for the monitoring requirements. As it a web-based application so that it can be accessible via the Internet. While, to ensure the security, it transmit the encrypted data through a secure internet protocol. It is user friendly data collection tool for data entry live from the field. It transmit the

data wherever/whenever Internet access is available, even with temporary connections (i.e., 3G/4G).

The quality and utility of data derived, either from monitoring or evaluation of an intervention depends on the data collection planning, implementation, and management. Understanding each stage of this process, and the linkages between them, is important for collecting relevant, high-quality data that can inform evidence-based decision-making and learning on those situations and decisions.

Apart from widely used textual and numeric types, it gives the ability to embed the images and videos within the user interface as well.

2.1. Pre-designed Forms

Pre-designed forms or data collection tools are the electronic version of a paper based forms. Pre-designed forms in application gives you the ability to access the stage wise data collection fields. It has number of advantages as shown below:

- Data collection in offline mode
- Cost Saving
- Time saving
- Risk free
- Easy to identify mistakes or outliers of data
- Data integrity
- Security
- Live activities data available for analysis

2.2. Handheld device Requirements

Android version: minimum version Android 6.0 Lollipop

Memory (RAM): minimum 1 GB

Storage: minimum: 16 GB

GPS availability: Yes

Internet connection: minimum 3G but preferred to be 4G (**only required during the**

submission of data to cloud-based aggregate server or for any updation in application or forms/tools)

2.3. Android Application Update

In case of any update, ICT team of ME&IE consultants will inform through multiple mediums like; emails and Province wise created WhatsApp groups to sync/refresh the App by pressing/clicking on Syn Icon and your Application will be updated automatically.

Face difficulties while accessing the Application?

If difficulties occur while accessing the application, please consult to ICT department of ME&IEC for a proper access permissions for use.

If the problem cannot be resolved, please email ME&IEC ICT department at "ict.npiwc@gmail.com"



3. INSTALLATION AND CONFIGURATION

To use android application, you must have pre-installed android application on your android device and properly configured through authentic credentials.

An account will be created for you with your username and it will be configured by ICT Department of ME&IEC.

4. MAIN INTERFACE – AN OVERVIEW

When you Click on android application the main screen will be shown as given below. After that you will be direct to the main interface where you will see data tabs shown in **Fig-1 & Fig-2**.

The main interface includes 3 sections: Header Bar, Data Tabs, and Add Button.

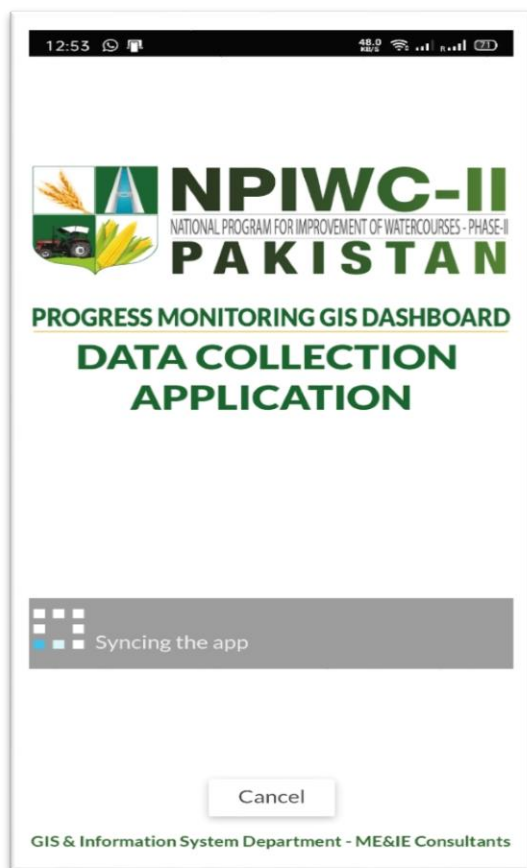


Fig-1

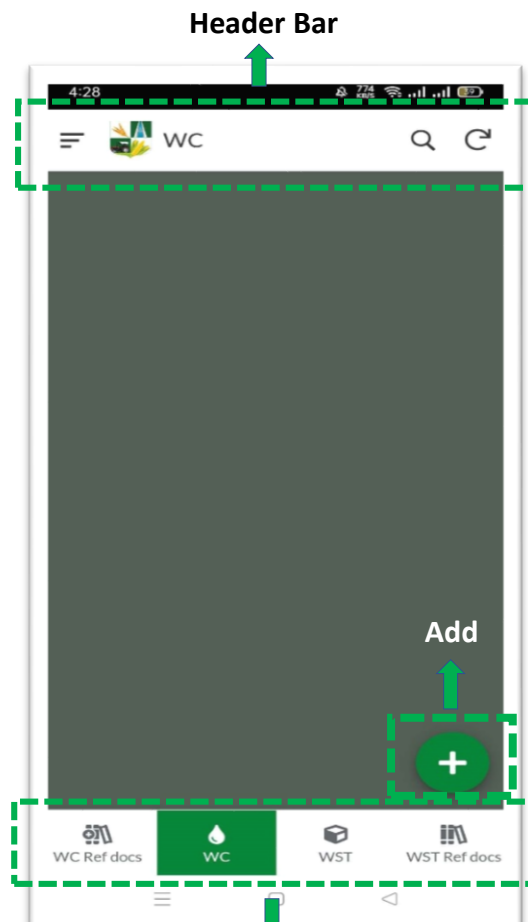


Fig-2

Data Tabs

4.1. Header Bar

1- Sync Icon

Synchronizing data between an Android device and cloud servers can be done by using this function, just need to click on the icon and all saved data will be sent/transmitted/submitted to the server (**Internet connectivity required for synchronization**).

2- Search Icon

Search option is available for the user's convenience. User can search the data by typing WC/ WST name or by year or by any relevant word, and the required search result will be appeared.

3- Three stacked lines

It appears in the top left corner of the menu bar as shown in **Fig-3** and used to display additional data tabs as per Zone/Unit wise requirement.



Fig-3

4.2. Data Tabs

There are four data tabs available WC, WCs-Ref docs, WST, and WST-Ref Docs on main interface as shown in Fig-4. Each data tab contains its relevant data, for example if you click on WC data tab then user will be able to view only watercourses data. Each Data tab has loaded with filters to view entered data according to the user's requirements. User must use these filters step by step to view the data.

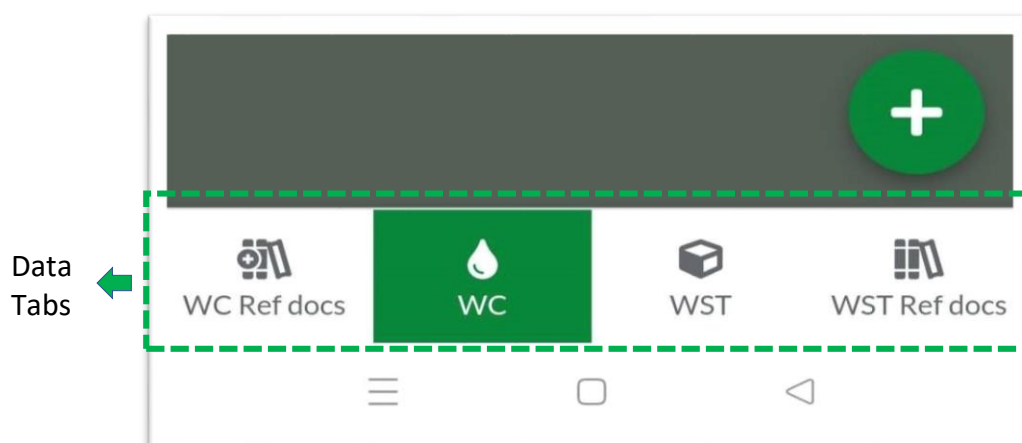


Fig-4

4.3. Filters

There are three types of filters available inside WC & WST data tabs as given in the following sub-headings.

4.3.1. Year-Wise

While click on the listed *District*, user will find the list of Years from where one specific year or "All" years can be selected. As an example, if only one specific year will be selected then it will display the data according to that specific year and if "All" will be selected then it will display the data according to all available years as shown below in Fig-5.

4.3.2. Tehsil-Wise

After selection of one/All Years, a list of available Tehsils under that selected District

will be appeared. From the listed list of Tehsils, user can choose one or “All” Tehsils and will get the data of that selected Tehsil, as shown below in Fig-5.

4.3.3. Status-Wise

Upon the selection of Tehsil, it will display the list of multiple active progress based status (Completed, 1st Milestone, 2nd Milestone, Work Order Issued, Work order Pending, Work Order Cancelled), from this window user can easily approach the required Watercourses/ Water Storage Tanks as shown below in Fig-5.

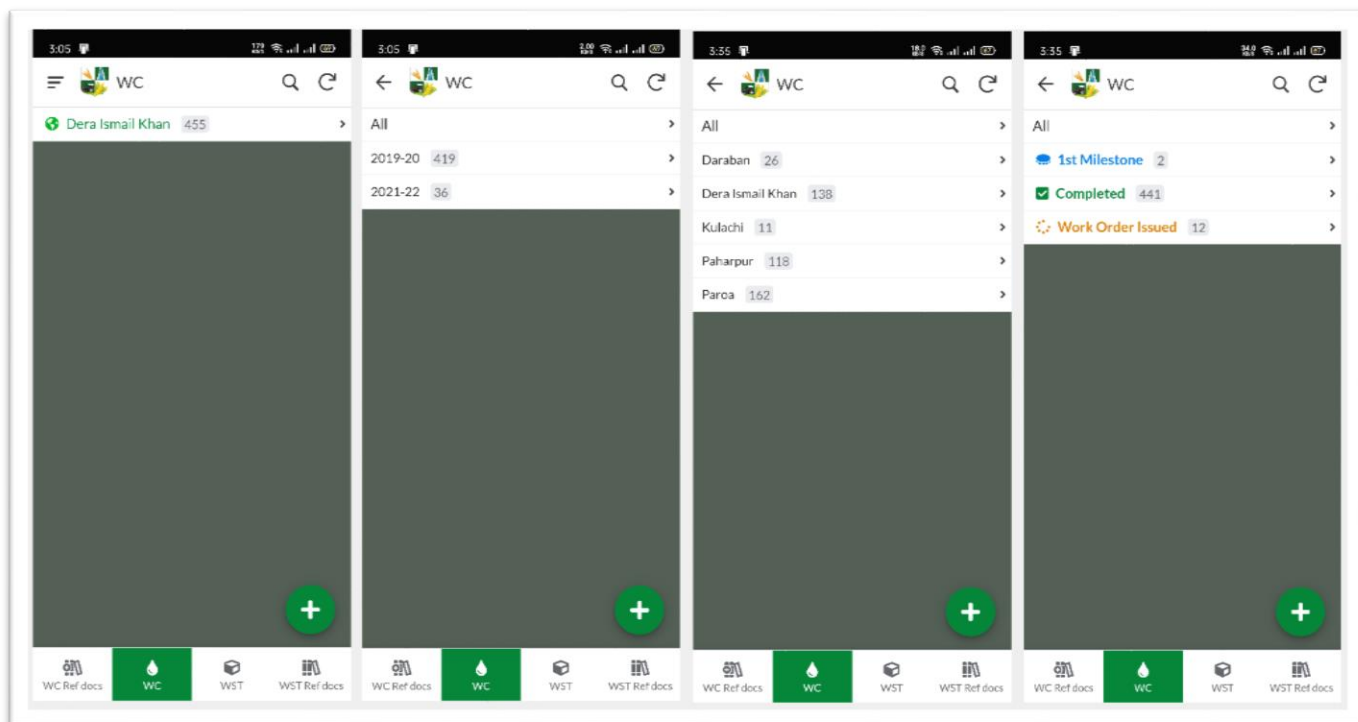


Fig-5

While using the above said filters, filtered data will be displayed on the next window. From here, user can easily review/edit any Watercourse/Water Storage Tank data as per the requirement.

For example, as shown in above Fig-5, by selecting the District of Dera Ismail Khan it shows 455 watercourses records and from here Year wise record distribution list like; 2019-20 contains 419 records and 2020-21 contains 36 records. On the selection of 2019-20, it will display the list of available Tehsils along the distributed record numbers or if user choose “All” from Years list then it will display the list of Tehsils along their distributed record numbers and so on the next window will show the record under the respected category.

5. ADD NEW DATA

User can add new data of Watercourse/ WST by using “**Add**” button available on the main interface as shown in **Fig-6**, on the click “**Add**” button it will open a blank form with input data fields. Each Watercourse/WST data input fields divided into four sections according to departmental procedure of Watercourse/WST construction as following

1. Identification
2. Profile Info
3. Issuance of T.S.
4. Milestone Payments

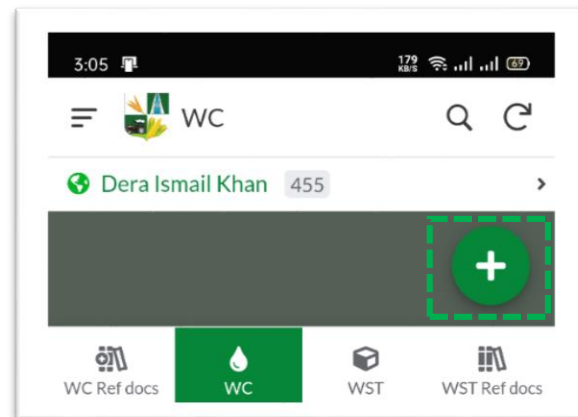


Fig-6

Field offices can easily fill the data of each intervention separately to reduce the workload and rapid data input without any delay.

5.1. Identification

This section contains the General information input fields like;

- Division
- District
- Tehsil
- Category of WC/WST Improvement
- Type of Lining
- WC/WST Scheme Name
- UC Name
- Village Name
- Type of Irrigation Source
- Financial Year

Field office have to fill all input fields to complete this section as all the fields are mandatory and can't be skipped. The mandatory field show the "*" sign on it as shown in **Fig-7**.

After filling all the mandatory fields of identification section, a confirmation button "**Identification Completed**" will appear.

Before Pressing the button of "**Identification Completed**", carefully review the submitted input data of this section. By clicking on "**Identification Completed**" all input fields will be locked and user can't be able to Edit any field in this section. In case of any doubt in data user can use the save button option instead of completing the stage for edit in future. while using the "**Save**" option for the data will be saved but user can not move to the next stage till the completion of the current stage.

The screenshot shows the 'WC KP Form' app interface. At the top, there's a status bar with time 7:55 and signal indicators. Below it, a navigation bar shows 'WC KP Form' with a back arrow. A tab bar below the navigation bar has three tabs: 'Identification' (selected), 'Profile Info', and 'Issuance of TS'. The main form area is titled 'Identification: General Info: Field: Distt Team'. It contains several input fields: 'Status' with a text input 'Work Order Pending', 'Zone' with a text input 'KP', 'Division*' with a dropdown menu, 'Category of WC Improvement*' with a dropdown menu, and 'Intervention Category' with a dropdown menu. At the bottom, there are two buttons: 'Cancel' and 'Save'.

Fig-7

WC Identification (Completion Status)	WC Identification - Completed	WC Identification (Completion Status)	WC Identification - Completed
Cancel	Save	Cancel	Next

Fig-8

As the user press “**Identification Completed**” button, it’s color will be change from gray to green, and the “**Save**” button will be automatically replaced with the “**Next**” button as shown in above **Fig-8**. By using the “**Next**” button option user can move to the next stage of form as the next stage which was disable till the completion of the current stage as shown in **Fig-8a**.

The screenshot shows the 'WC KP Form' app interface. At the top, there's a status bar with the time 7:55, signal strength, and battery level. Below the status bar, there's a back arrow and a logo. The main title is 'WC KP Form'. Below the title, there's a horizontal bar with four stages: 'Identification', 'Profile Info', 'Issuance of TS', and a right arrow. The 'Identification' stage is highlighted, indicating it's the current stage.

Fig-8a

5.2. Profile Info

Profile Information section contains input fields like.

- Coordinates
- Picture of WC/WST Before Improvement
- WC Location on Canal/Minor
- WUA Registration No
- WUA Registration Date
- Name of President
- CNIC No of President
- Total No of Shareholders
- Male WUA Members
- Female WUA Members
- Gross Command Area
- Cultural Command Area
- Total Length of Watercourse
- Sanctioned Lining Length of Watercourse (Meter)
- Design Discharge (Cusec)
- Design Discharge (LPS)

The screenshot shows the 'WC KP Form' app interface. The 'Profile Info' tab is active. The form includes the following fields:

- Coordinates:** A text input field with a location pin icon on the right.
- Picture of Watercourse - Before Lining:** A text input field with a camera icon on the right.
- WUA Registration No.:** A text input field.
- WUA Registration Date:** A text input field with a calendar icon on the right.

At the bottom of the form are three buttons: 'Prev', 'Cancel', and 'Save'.

Fig-9

Again, field office has to fill all input fields to complete this section and move to the next section. All fields in the Profile Information section are not mandatory like *Coordinates & Picture of Watercourse* input fields, user can fill these fields later during field visit.

Upon all mandatory fields of Profile section filled, confirmation button “**Profile - Completed**” will appear and by clicking it all input fields will be locked and user can’t be able to Edit any field in this section except **Coordinates & Picture of Watercourse** input field which is optional, and you can this fill this later during your field visit.

Carefully review the data putted in form before Pressing the “**Profile - Completed**”. Remember, after pressing the “**Profile - Completed**” button its color changed from gray to green and then you will be able to move into next section. Otherwise, next section “**Issuance of TS**” won’t be unlocked.

5.3. Issuance of TS

Issuance of TS section contains input fields like.

- Sanctioned Amount of T.S (Rs.)
- Issuance Date of T.S
- Revised T.S Amount (Rs.)
- Revised T.S Date
- Commencement Date.

While filling the current section, field office must have to fill all input fields to complete this section and move to the next section. All fields in the Issuance of TS section are not mandatory like Revised T.S Amount (Rs.) & Revised T.S Date, these input fields are optional and can be used in case of any revision in the amount of Technical Sanction.

After filling commencement date (Work Order date) the status of watercourse will change from “Work Order Pending” to “Work Order Issued”.

After all mandatory fields of Issuance of TS section filled then a confirmation button “**Issuance of TS - Completed**” will appear and by clicking on it all

input fields will be locked and you can’t be able to Edit any field in this section except **Revised T.S Amount (Rs.) & Revised T.S Date input field is optional.**

Carefully review the data putted in form before Pressing the “**Issuance of TS - Completed**”. Remember, after pressing the “**Issuance of TS - Completed**” button its color changed from gray to green and then you will be able to move into next section. Otherwise, next section “**Milestone Payments**” won’t be unlocked.

Fig-10

5.4. Milestone Payments

Milestone Payments section contains input fields like.

- Amount of ICR-I Released (Rs.)
- Date of ICR-I Released
- 2nd Bill Payment (Rs.)
- 2nd Bill Issuance Date
- 3rd Bill Payment (Rs.)
- 3rd Bill Issuance Date
- 4th Bill Payment (Rs.)
- 4th Bill Issuance Date
- Amount of ICR-II Released (Rs.)
- Date of ICR-II Released
- Amount of Final Released (Rs.)
- Date of Final Released
- Total Released Amount
- Completion Date
- Executed Lining Length (Meter)
- Verified Govt. Share (Rs.)
- Verified Community Share (Rs.)

WC KP Form

Profile Info | Issuance of TS | Milestone Payments

WC Milestone Payments : DD : AD

Amount of ICR-I Released (Rs.)

Date of ICR-I Released

2nd Bill Payment (Rs.)

2nd Bill Issuance Date

Prev Cancel Save

Fig-11

All fields are optional, and field office can fill relevant fields as per the payment issued like if First Payment is issued by today then you just need to fill the **Amount of ICR-I Released (Rs.)** and **Date of ICR-I Released** input fields and remaining input fields can be filled later according to payments released. If you fill ICR-I then Status will change from Work Pending to 1st Milestone and so on according to your input, status will change accordingly and automatically.

In case of only 1st payment released as final payment you just need to fill the Amount of ICR-I Released (Rs.), Date of ICR-I Released, Completion Date, Executed Lining Length (Meter), Verified Govt. Share (Rs.), Verified Community Share (Rs.) and all remaining payments fields will be empty.

In case of only 2nd payment released as final payment you just need to fill the Amount of Final Released (Rs.) and Date of Final Released, Completion Date, Executed Lining Length (Meter), Verified Govt. Share (Rs.), Verified Community Share (Rs.) and all remaining payments fields will be empty.

In case of all ICR-I, ICR-II and Final Payment released you must fill all relevant payments input fields to mark the watercourse status as **“Completed”**.

6. HOW TO EDIT/UPDATE EXISTING DATA

There's Edit option available with each entered record, by clicking on it, it will open the data into Edit Mode where you can easily Edit/Update the data as shown in **Fig-12**. Remember that completed/locked sections can not be edited/updated.

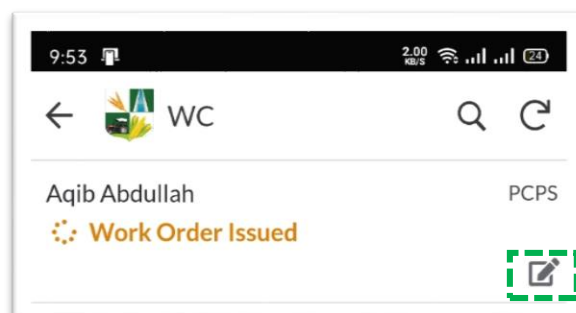


Fig-12

Edit mode contains two buttons at the bottom **Fig-13**.

Save Button

After edit/update data in the form, you must have to press this button to save the changes as shown in **Fig-13**.

You can “**Save**” your data anytime during editing/updating in the following sections

- Profile Info
- Issuance of T.S
- Milestone Payments

Because it's not mandatory to fill all data in a single attempt, this is allowed due to designed input data flow.

Identification section all fields are mandatory, and you can't save the form during editing/updating you must have to enter all relevant data or otherwise it will not let you save the form and display alerts on mandatory field that needs to be filled before Saving the form.

Fig-13

Cancel Button

You cancel your Editing/Updating any time by simply pressing this button and it will discard all your **changes made** as shown in **Fig-13**.

- Green asterisk (*) attached with Mandatory Questions and they cannot be skipped in any case. You must have to fill data to these questions otherwise it will display alert message and you will not be able to save your form.
- Without green asterisk (*) question are optional and can be filled later during data Edit/Update.
- While you are Editing/Updating the data, the current input field marked with green color that indicates you are Editing this field until you move to next field, or you need to click on the left side & the color changed from green to gray that's means now the field is not active.