User Manual LAIS GIS

Version
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User Manual

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1 Introduction

This user Manual for the Land Administration Information System will provide the Instructions for the user how to act with LAIS in addition to the Land Administration System Procedures Manual that describes what should be done during the Registration Process.

In the Land Administration System Procedures Manual is also given an explanation of the entire process of registration.

For that reason in the manual of LAIS will only be treated the different steps of the Registration Process and the requirements for these steps.

In the second chapter an overview is given of the LAIS system and how it can be used and in chapter 3 the different process steps will be treated.

In the last chapter, tips and tricks will be given about the use of the different functions of LAIS and also how to act if something went wrong.
2 Overview of the LAIS system.

2.1 Short introduction

The LAIS system is a role based system, which means that for the different steps of the Registration Process, roles are defined, that can be connected to the different users. So depending of the different roles that are given to a specific user, the different parts of the system can be used.

LAIS is an integrated system with an Administrative Part and a GIS part. The GIS part is used in the Process phase of the registration Process and also in the Approval phase. In the Approval phase it’s only used through the Administrative part of the system.

All the Parcels of Rwanda are stored in one GEO-database, which is connected to the LAIS admin database. The (data) exchange between the LAIS admin part and the LAIS GIS part works through web services. The users works or in the LAIS Admin part and on the background the GIS part is used, or works in the LAIS GIS part and in the background the LAIS admin part is used.

2.2 Access to LAIS GIS.

The authorization for a user to the GIS system for the maintenance of Parcels, is registered in a system called Active Directory.

If a user has the role of GIS professional and the GIS extensions are installed on the used workstation, the user will have access to Arc MAP, via the start menu or via the Shortcut.

After the first access the user should organize his screen and save the settings. A suggestion how it can be done is given in the next chapter.
2.3 Overview of LAIS GIS system

2.3.1 Overall

Explanation of LAIS GIS

This screen is the main screen of LAIS GIS. The most important part is the work list. In the work list, all the UPI’s are showed with Administrative Documents with a Merge, a Split or a Change Object (Border Change)

Only the documents are showed for the Province and the district for which the user is authorized and the user can select by Province, District, Sector and Cell. It’s also possible to search just on UPI. For example 1/02/02/02/250, is Parcel number 250 in Province Kigali City, District Gasabo, Sector Gasata and Cell Nyamabye.
Orange is done in LASI admin, Blue is done in LAIS GIS.

For the GIS part, there are three layers and a Ortho Phot layer. Other layers as Cell, Village, Wetlands are not mentioned here.
Functionally can it be seen in this way.
If a user starts a transaction, using the work list, the regarding parcels are copied into a provisional layer, in which the changes are made.
If the GIS user is finished, the changes are still in the regarding layer and the Administrative system is informed that the GIS part is done and the document is send to processed.
After the Registrar approves the changes, the GIS system will be informed and the changes move from the Provisional layer to the actual layer and the information of the actual layer will move to the historical layer.

How it works technically, will be explained in the more technical documentation.
2.3.2 Getting started (general for all kind of transaction in the list from Admin).

First select a UPI in the work list.

(for a refresh of the list, start at the top level)

By double clicking the regarding Parcel in the list, the system will come with a message that asks to confirm processing.

After confirmation the system automatically zooms in to the regarding Parcel

Start editor by clicking editor and start editing.
Select the right layer to edit. Sde.Default – mra-gis

Choose the feature that is needed for the changes to be done, for example Cut polygon

Choose the pen if needed.

Depending on the changes that should be made, choose the tools.

In case of a **split**, there is always one parcel that is split and from other Parcels the boundaries can be changed (see next chapter for further explanation)

In case of a **merge**, there are always two or more parcels that are merged and from these Parcels the boundary can be changed (see next chapter for further explanation). One of the parcels is connected to the Administrative Document.

In case of a **Border Change** there is always one parcel in the Administrative document, but always one or more extra parcels that will be affected (have also a border change) (see next chapter for further explanation)

If the work is done, the transaction should be stopped via Stop Editing.
2.4 GIS transactions

2.4.1 Introduction
The different possible transactions can be done through an Administrative Document. In combination with a split or merge, also a boundary change can be done.

2.4.2 Case of a Split.

The transaction should be done in GIS, based on the Administrative Document. If some boundary changes should be done, do the boundary changes as described in the boundary change part.

Split the parcel with the GIS tools

After the Parcel is split, select editor and select 'stop editing'

The system will ask a confirmation.
Click Yes and the GIS system will send the changes to LAIS admin for Approval
The system gives the new numbers to the parcel and stores the new Parcel and boundaries in a provisional layer till the changes are Approved by the Registrar.
After Approval, the LAIS admin part of the system sends a message to the GIS part of the system and the new Parcel is stored in the Actual layer and the old Parcels are stored in the Historical layer. This is done in an automated way.

In case of the (deputy)Registrar refuses to Approve, the transaction will be rejected and all the changes will be turned back. Also this will be done in an automated way.
2.4.3 Case of a merge.

One of the Parcels that should be merged, is connected to the Administrative document in LAIS admin (in this case 2554) and can be selected.

The boundary changes that are in the field sketch can be done as is described in the boundary change part.

Then select the parcels that should be merged. (Shift and Select the regarding Parcels)

Select merge in the Editor and click

A message comes up and ask you to confirm which parcel should be selected to use for the merge.

Make sure choosing the one that is mentioned in the Administrative document and selected in the list.

So in this case the selection should change to 2554. (standard Arc GIS always takes the biggest parcel)

Click OK and the proposed merge will be showed.
Go to Editor and select the 'stop editing' and save the changes.

The GIS system will ask the Adm part if it's allowed to merge the regarding parcels. If it's not allowed, a message will come up and the transaction in GIS will be reversed. For example:

In this case, click OK and the proposed changes will be reversed.

To continue according to the request for Merge, in LAIS admin the changes should be made (for example removing a Caveat on one of the Parcels to be merged), to make sure that the parcels can be merged, according to the rules.

(in this case, in the LAIS system, the Admin Doc can be removed from the GIS list, by return to accepted and removed from Accepted by reject)

The rules for merge are kept in the Administrative part of the system.

The check if the parcels are in the same Cell should be done in GIS by the user. (not implemented in GIS)
2.4.4 Case of no Rights.

In the case that in a Merge or a Split or a boundary change, the owner has decided that at demarcating his boundary, part of a parcel doesn’t belong to him, the regarding part has to be selected and the code ‘NR’ should be filled in Change-ID.

The No Right parcels will not be send to LAIS adm.
To be able to add No Rights, to a certain parcel(part), select that one or more part(s) and go to the regarding layer and go to Open Attribute table.
At click on Open Attribute table a screen pops up.

In attribute table go to the bottom of the screen and select in show ‘selected’. That makes that only the selected parcel(part)s will show up.

Add in Change_ID ‘NR’ and then go to ‘Editor’, select STOP Editing and click save edits in the screen.
The no right parcels will not be send to LAIS admin.
It is also possible to delete new created parts, just by cutting the parts. It should not be done if the parcel is surrounded by other parcels, but only if it’s in fact a part of the public area.
Select other part and ‘Cut’ the part and it disappears.

Now it’s part of the public area.
2.4.5 Case of a Boundary Change.
A boundary Change can come through an Administrative Document Boundary Change or through a Split or Merge. In case of a boundary change, the changed boundary will cause a split of a piece of the Parcel in the Administrative Document, that should be ‘merged’ with the neighbouring parcel or a split of a piece of a neighbouring parcel, to be merged with the parcel in the Administrative document.
It is also possible to create a boundary change that splits a part of a parcel that cannot be merged with another parcel. In this case the code ‘NR’ has to be filled.

In case of a boundary change, the user has to make clear what part should be merged with what parcel as showed in the next example.

The straight line is the new line between parcel 1501 and 1502, so the small part of 1501 should be added to 1502 and the part of 1502 should be added to 1501.
The next step should be done.
Select small part of parcel 1501 and parcel 1502.
Select and merge and the next screen pops up. Select here the Parcel to which the part should be added. This will make sure that after the merge of the two parts, the parcel has still parcel nr 1502. Do the same for adding the part of 1501 to 1502, but then select in the screen above parcel 1501.
Approval
After Approval, the LAIS admin part of the system sends a message to the GIS part of the system and the new Parcel(s) are stored in the Actual layer and the old Parcel(s) are stored in the Historical layer.

In case of the (deputy) Registrar refuses to Approve, the transaction will be rejected and all the changes will be turned back.

2.4.6 Case of Create Parcel

In some cases just one or more new Parcel(s) should be created. This can be the case in a not demarketed area, normally a public area or in case of a sporadic Adjudication.
It’s not allowed to create a new Parcel on top of an already existing Parcel.
(For now there is no check on this in the GIS system)

It is also not allowed to create a Parcel across a Cell or Village line. That may cause some issue if the Cell or Village boundary is not correct. In this case these boundaries should first be changed, by a GIS expert.
To create a new Parcel, go to Create Parcel Without Document
Select start editing and use the tools to create the Parcels.
For now: Auto complete polygon will not work (will be investigated)  
Then stop editing and save changes.

There is no interaction with the LAIS admin system. As soon as a find is done in LAISadm, the Parcel information will be stored in LAIS adm.

As soon as the changes are saved, the parcel in GIS is available in the actual layer.
3 Short overview about GIS and Adm process connection.

In LAIS admin the Administrative documents are booked and the division of parcels and the merge and boundary change will be send to GIS.

If a user starts working with GIS, he is able to select a UPI in the worklist. The user will split or merge the parcels and / or changes the boundary of a parcel and after choosing Stop Editing, the changes can be saved.

After the saving, the changes will be checked in LAIS admin and if OK LAIS will save the changes according to the information send by GIS.

If not OK, an error message will be send to GIS and the transaction will reverse in GIS and also in Admin and it has to be done again.

If the communication between GIS and Admin is not possible, messages will be given to the user, for example LAIS adm is not available, please try again or LAIS adm doesn’t respond, please try again. (these messages are not implemented yet)

If all is OK and changed well in GIS and in Admin, the status of the document in LAIS Adm will change into processed and the document will be in the queue for the Registrar to Approve.
The Approver picks a document from the list and will go through the information in LAIS adm and will look at the image of the changes in LAIS, see examples in the next page.

If he approves, the information in LAIS GIS will move from the provisional layer to the actual layer and from the actual layer to the historical layer. (in an automated way)

If he doesn’t approve, he will make a comment about the reason (can be seen by the users (not yet implemented) and the document will go back to Accepted. It can be resend to GIS. GIS will reverse the changes.

After the work done in GIS (Automatically) the approver will see that the document is removed from the worklist.
In LAIS admin, the Approver can see what changes are made through the Administrative Document. Images of the changes made.

Division of parcel

Merge Parcels
Change boundary

Legend
- Old Border
- No Right
- Affected
- New
- Deleted
- Surrounding

Scale 1:1412
4 Important to know

- Never use Stop Editing, before the transaction is completed. It’s not possible to stop and continue later.
- Don’t use the save edits feature. This will disturb the process.
- It’s possible to do one transaction at a time (per person). If a running transaction isn’t closed and if you try to start another one, the next message comes.

It can be seen which transaction is running (highlighted in red)

It can be closed by clicking start editing (select the right layer) and stop editing. Select a new document.

- It is not allowed to change the boundary of a Parcel in such a way that the other parcels disappear in that change (See example)

The GIS system will not check it, but it will waste the consistency of LAIS adm and LAIS GIS, because the Parcel will disappear from LAIS GIS but not in LAIS adm.