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Actors and use cases for the MAGIC Analysis and Reconstruction Software

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Abstract

In this document one can find some ideas about the general use cases and the different actors of the MAGIC Analysis and Reconstruction Software. Please think about some others!!

All contributions are welcome!

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1 Introduction

For the development of the MAGIC Analysis and Reconstruction Software (MARS) it is very important to identify the persons that will use the MARS. Find an answer to the following question:

WHO will run the MARS?

But the answer must be a little bit more precise than just “MAGIC physicists“.

2 List of Actors

- hardware worker
  During the installation of MAGIC and also in the normal operation it will be very interesting for hardware worker to see how the new devices install are running. The MARS must be able to show these persons the intersting things i.e. the currents in all pixels, the content of FADCs, the weather, etc.
- shiftcrew
  For these persons it is very important to see if the quality of the data from MAGIC telescope is good or not. They need some results from the data to decide if one source should be observed or if they take another source. They need also some information about the current status of the MAGIC system. After one night they want a physical result (i.e. flux of gammas) from their data.
- physicist
  These persons are interested to publish results in Journals. Therefore these persons needs to select the data they want to analyse and wants to produce pyhsics results (i.e. a flux measurement, a light curve, a periodicity study, etc.). This person must be able to select runs with good data, to reconstruct each event and to produce physics data. Also the amount of data can be from one run up to data from more than 4 years.

This list is just a first approach to identify the actors of the MARS. Please think about others.

3 General use cases

If we have identified the actors, we must connect use cases with the actors. The first trial you found in the figure 1.

3.1 Descriptions for the general use cases

Four possible use cases are identified as you can see in Figure 1. The next step is a detailed description of this use cases. This description of the use cases are the main part of the use case analysis.

1. use case: Event Scan
   possible actors: hardware worker, shiftcrew
   The actor selects some data. The actor can view the contents of the FADCs for each pixel for each event. The actors can get an impression if the system is in a resonable shape. If the view of the FADC content looks totally strange the actor must take care about the MAGIC system. Then some hardware work seems to be neccessay (or the daq is not okay!?).

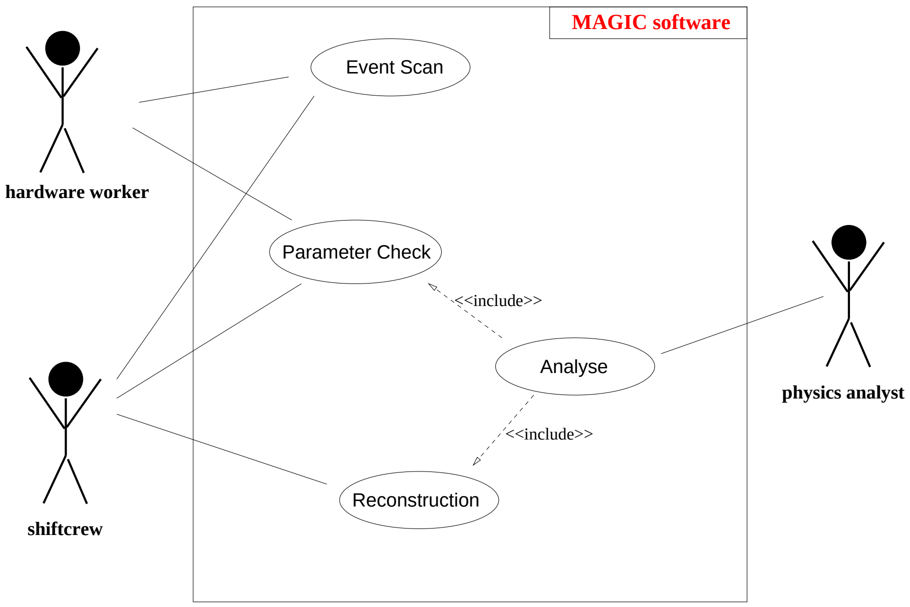

Figure 1: First trial to identify use cases. This figure shows one of many possible schemes for the fundamental architecture of the MAGIC analysis and reconstruction Software (MARS)

2. use case: Parameter Check
   possible actors: hardware worker, shiftcrew, physical analyst
   The actor selects some data. The actor gets the possibility to view the current values of the parameters, that are indicating if the selected data are okay or if there were problems with the hardware, with the daq software, with the weather conditions, etc. The actor gets a recommondation if the selected data are useful for further analysis.

3. use case: Reconstruction
   possible actors: shiftcrew, physical analyst
   The actors selects some data. Each events of this data will be reconstructed. After this reconstruction process, the actor can view first indications of gamma rays from the selected data.

4. use case: Analysis
   possible actors: physical analyst
   The actor selects some data. In this use case the amount of data can vary from one run up to data from more than years. For all this data the parameter check will be used and the reconstruction will we done. The actor will get from the reconstructed data the physical results (flux!?, there will be a lot of possible results!?!).

This list of use cases is not the only one solution. Please let me know if you think that there must be an additional one. Also the description is just a first step.

The primary profit of the use cases are to identify the requirements and the rough elaboration of the future systembehavior. They are not useful for the detailed abstraction.