The development of User Interface for Multi-Beam data processing in Linux

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Introduction

✓ **Purpose**	The IHO will intend to develop a suitable open-source based processing package which is produced a low or no cost software solution for the logging and processing of survey data
✓ **Investigation**	On the above purpose, The MB-System is a best choice of package to process the swath mapping sonar data. Due to its command line interface, the novices or MS-window users feel inconvenient for usage.
✓ **Solution**	To get ride of this inconveniency, Develop the User interface of MB-System for more efficient MB-data processing in Ubuntu Linux system

※ ***MB-System : Data Processing Package for Multi beam Echo Sounder, Side Scan Sonar***

Environment of Development

MB-System Manager System Architecture

MB-System

Data Processing Package made by Columbia University. The MBM UI was developed using open-source software tools. These included the Eclipse, and the JDX software development tools. The applications were developed using Open Source Linux Operating System

Environment of Operation and Development

Operating environment

Division	Item	Specification
Hardware	CPU	Intel core 2 or above
	Main memory	1 GB
	Hard Disk	100 GB
Software	OS	Linux 2.2.x or above
	JAVA	Java Runtime Environment (JRE) 1.5.x or above
Tool	JAVA Editor	Eclipse 3.x or above
	JAVA Compiler	JDK 1.5x or above

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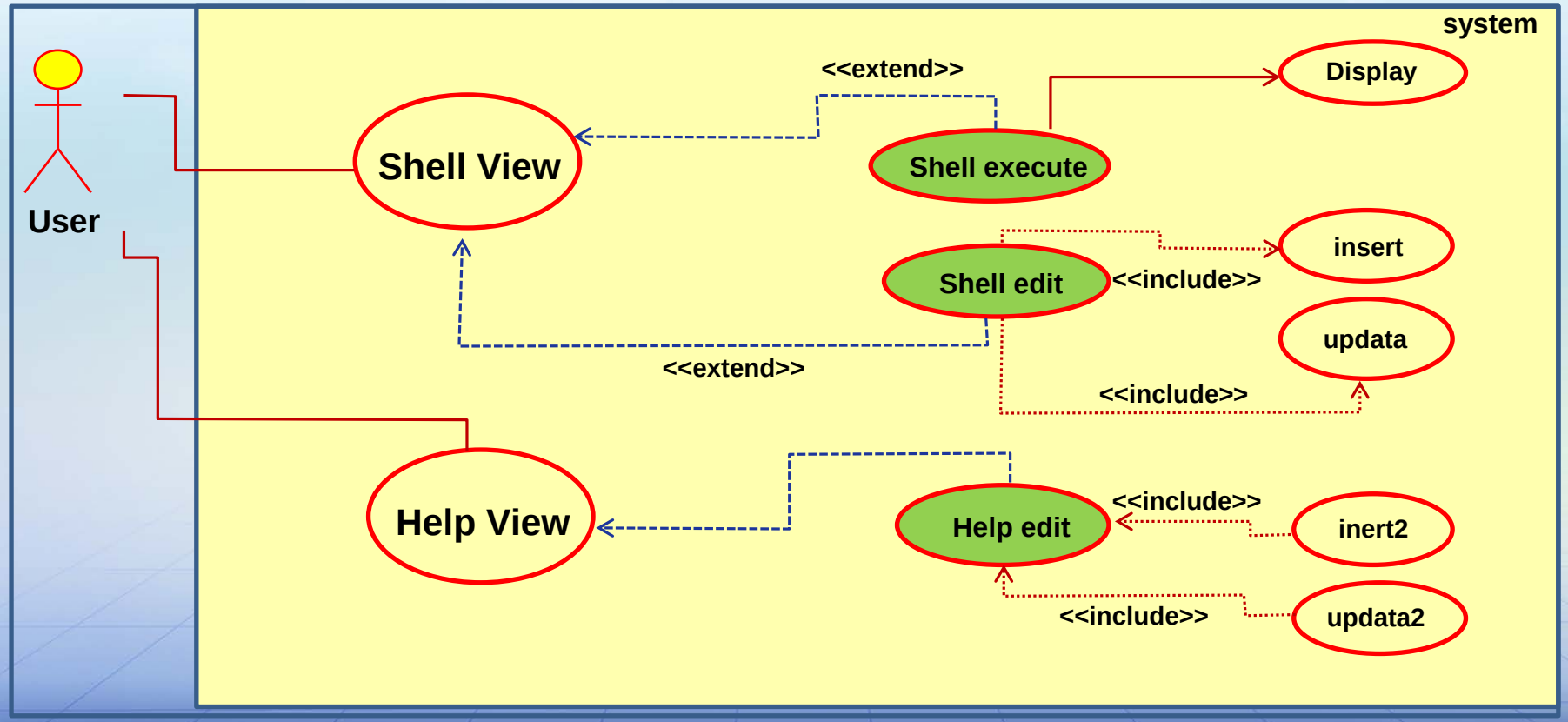
Design of System

❖ Problem

Inconvenient user interface for novice or MS-window user

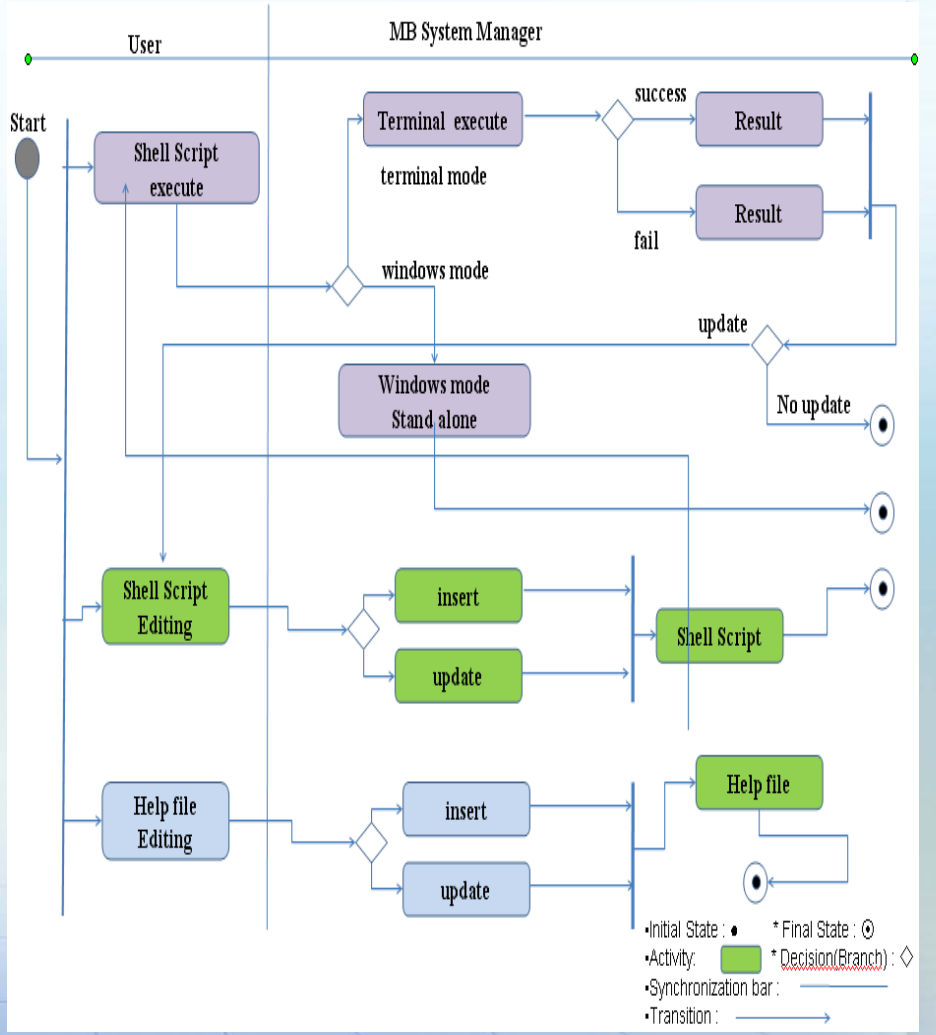
❖ Solution

Developing User Interface, The executable commands of MB System convert to graphic button

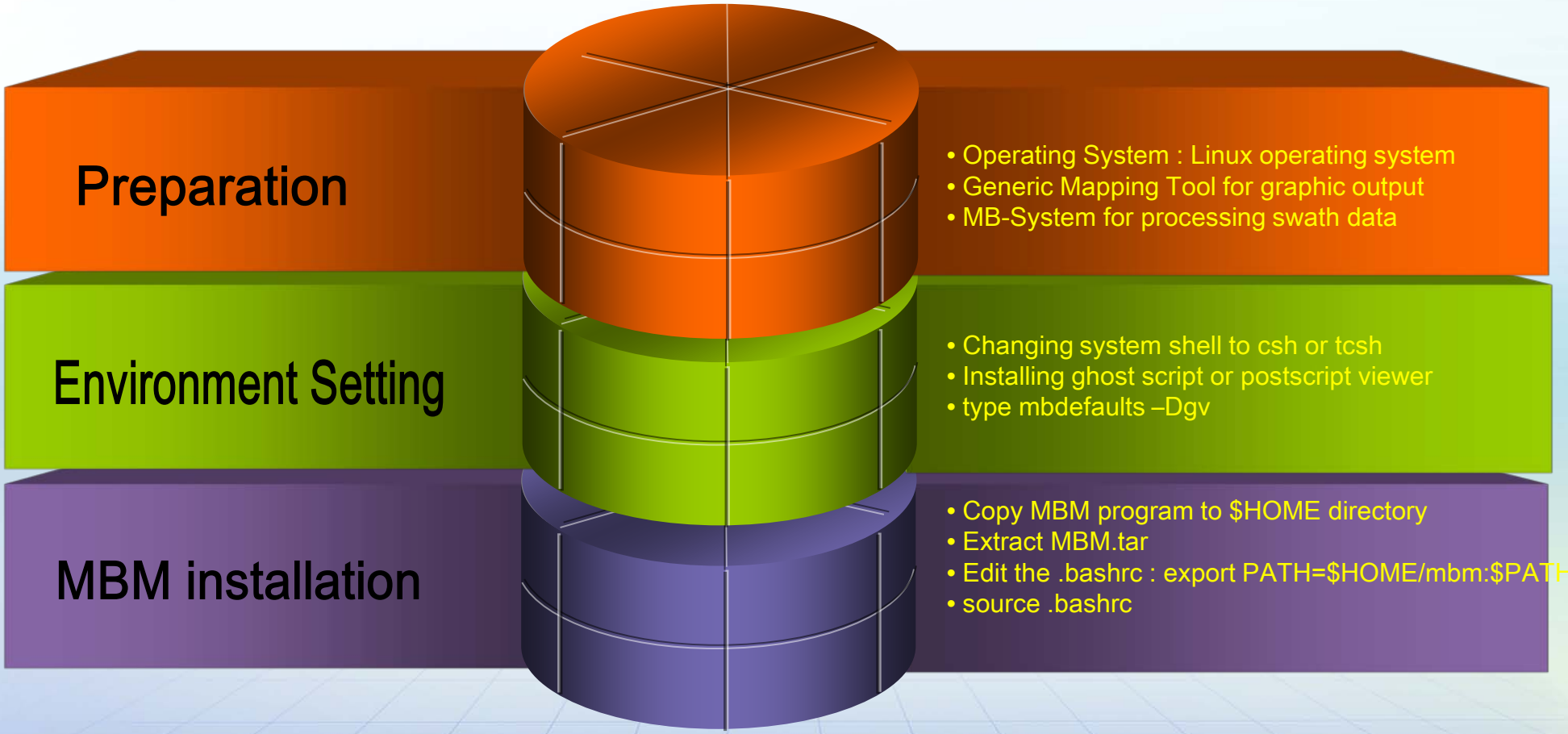


Design of System

User choose shell script execute in window mode.	MB System has two type of result display, the one is terminal text display and the other is graphic display in window. - Terminal execute : Display the result and Finish - Window mode : Transfer the results to MB System manager
User choose Shell Script Editing mode in window	- insert mode : Insert new shell script. - update mode : Update the established shell script.
User choose Help file Editing mode	- insert mode : Compile documents for MB system command. - update mode : Modify established document for MB system command.



System installation and Environmental Setting

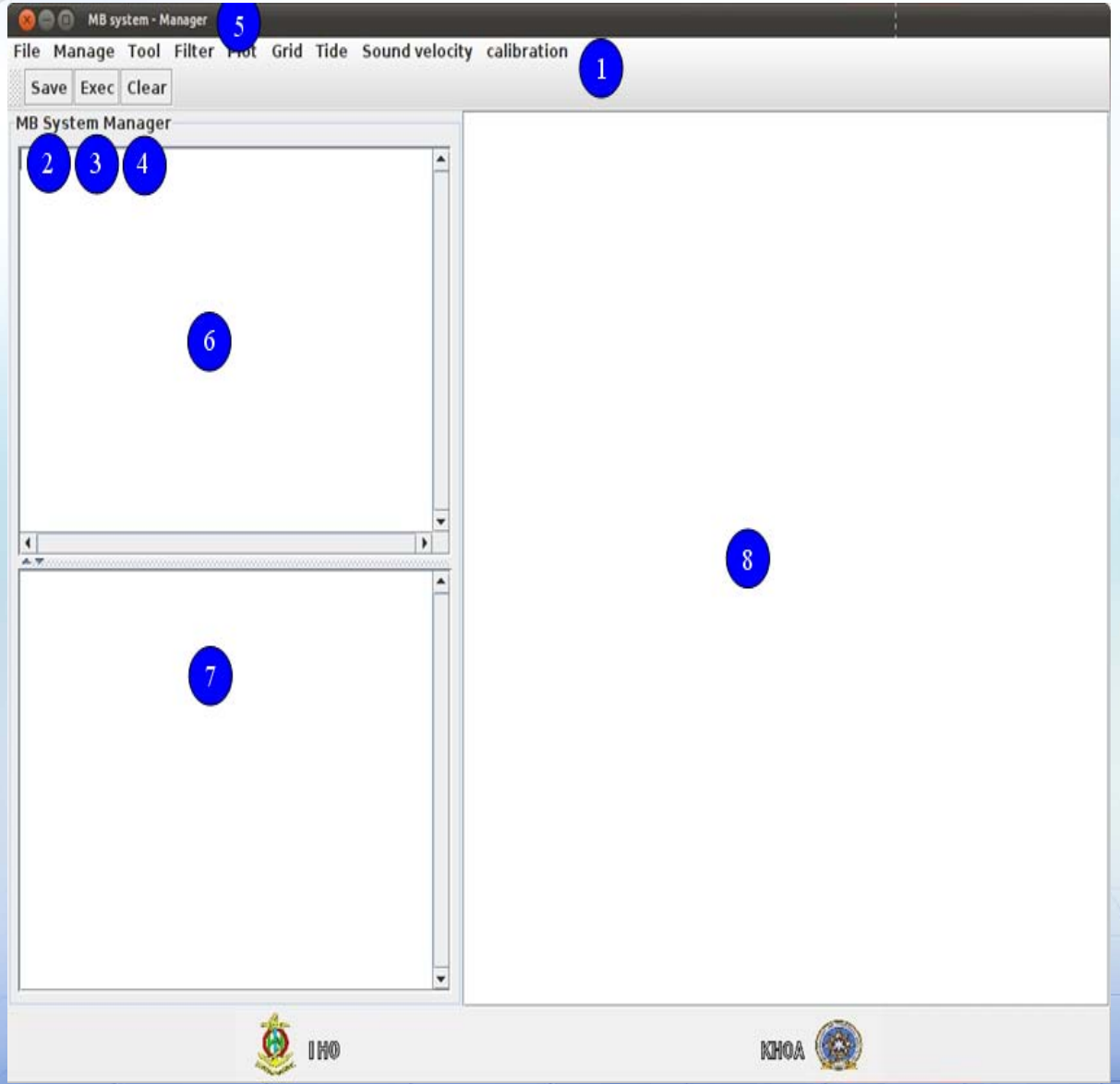


Design of file structure

Hlp directory	contain the help files of MB-System
Sh directory	contain the shell script files of MB-System

```
./mbm/
./mbm/mbm
./mbm/mbm.jar
./mbm/hlp/
./mbm/hlp/mbfilter.hlp
./mbm/hlp/mbgrid.hlp
./mbm/hlp/grid_plot.hlp
./mbm/hlp/mbbath.hlp
./mbm/hlp/mbedit.hlp
./mbm/hlp/mbnavedit.hlp
./mbm/hlp/mi_mblevitus.hlp
./mbm/hlp/grid_3dplot.hlp
./mbm/hlp/mbdatalist.hlp
./mbm/hlp/mbprocess.hlp
./mbm/hlp/mblist.hlp
./mbm/hlp/mbvelocitytool.hlp
./mbm/sh/
./mbm/sh/mblist.sh
./mbm/sh/mbgrid.sh
./mbm/sh/work.sh
./mbm/sh/mbbath.sh
./mbm/sh/grid_3dplot.sh
./mbm/sh/grid_plot.sh
./mbm/sh/mbprocess.sh
./mbm/sh/mi_mblevitus.sh
./mbm/sh/mbedit.sh
./mbm/sh/mbnavedit.sh
./mbm/sh/mbfilter.sh
./mbm/sh/mbvelocitytool.sh
./mbm/sh/mbdatalist.sh
```

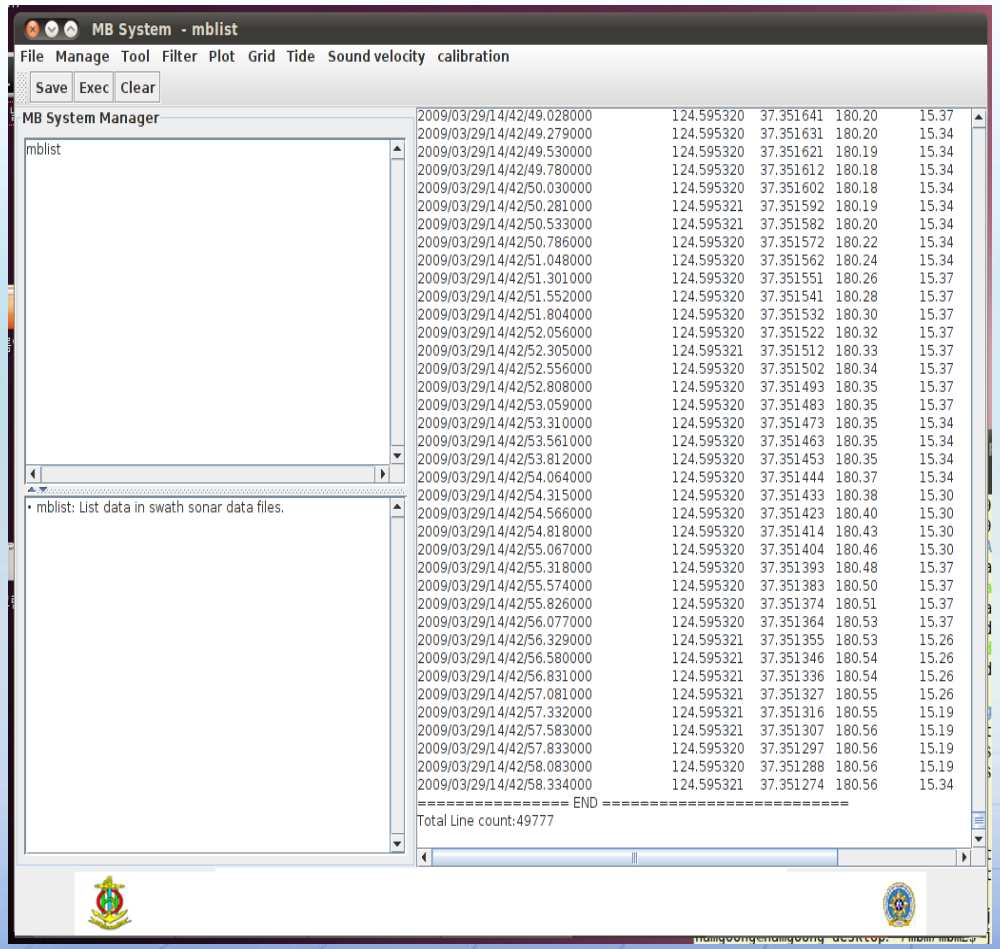
MBM Program



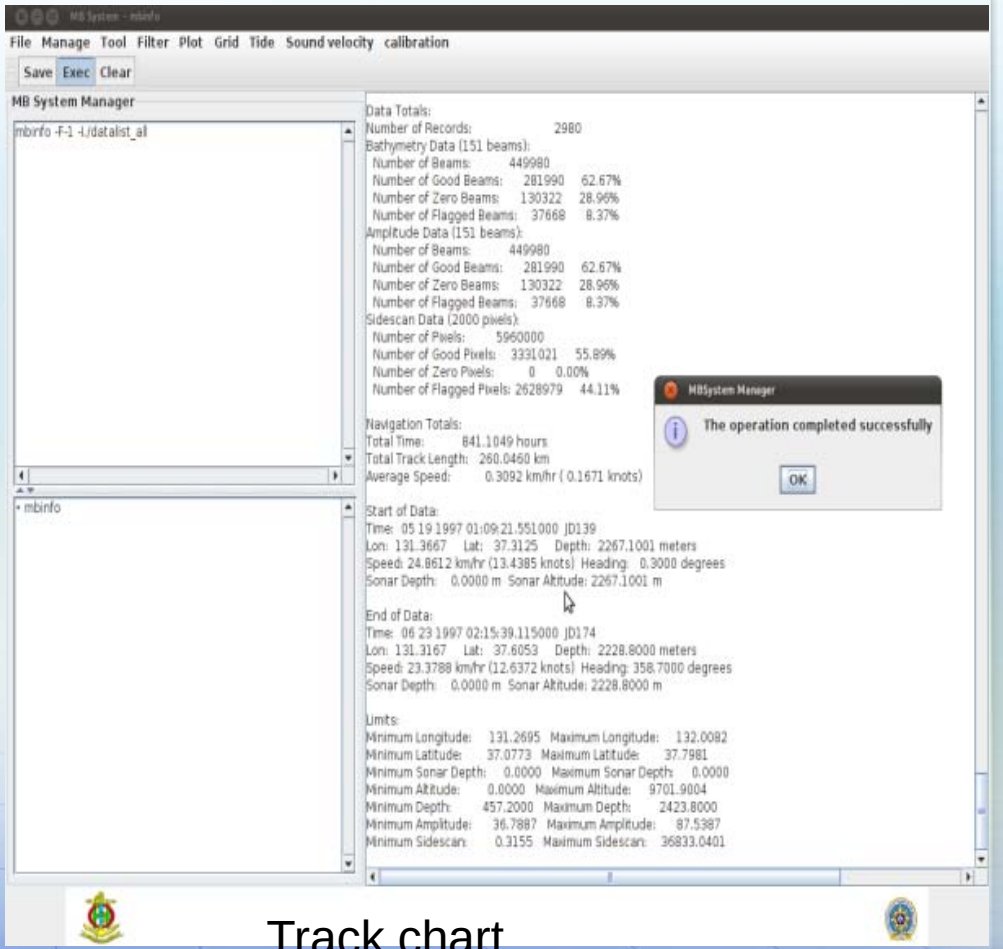
1. Full-down Menu
2. Save the command and help file after editing
3. Execute MB-System shell script
4. Clear the contents of 8
5. Inform the current MB-System command
6. Show and Edit the current shell script
7. Show and Edit the help file
8. Display the results of the current command

MB-Data processing

Manage
- mbdatalist
- **mblist**
- mbinfo



Manage
- mbdatalist
- mblist
- **mbinfo**



Track chart

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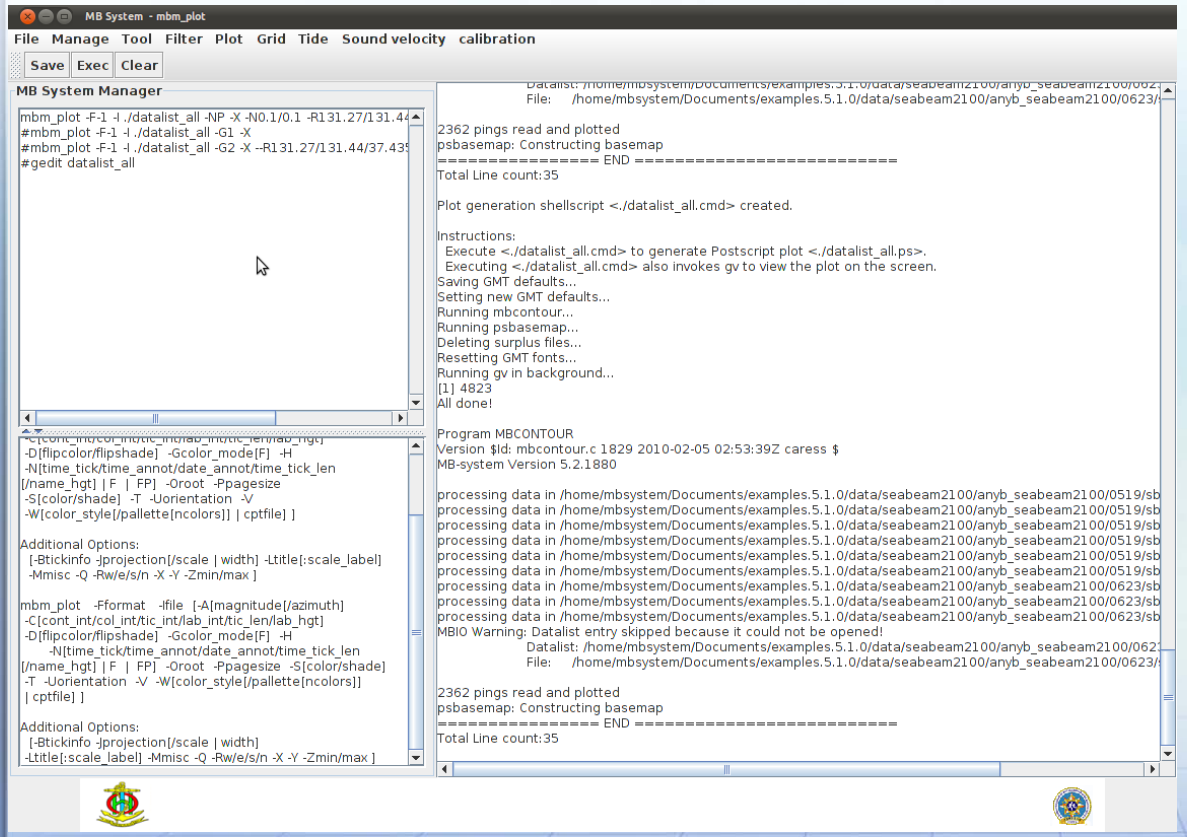
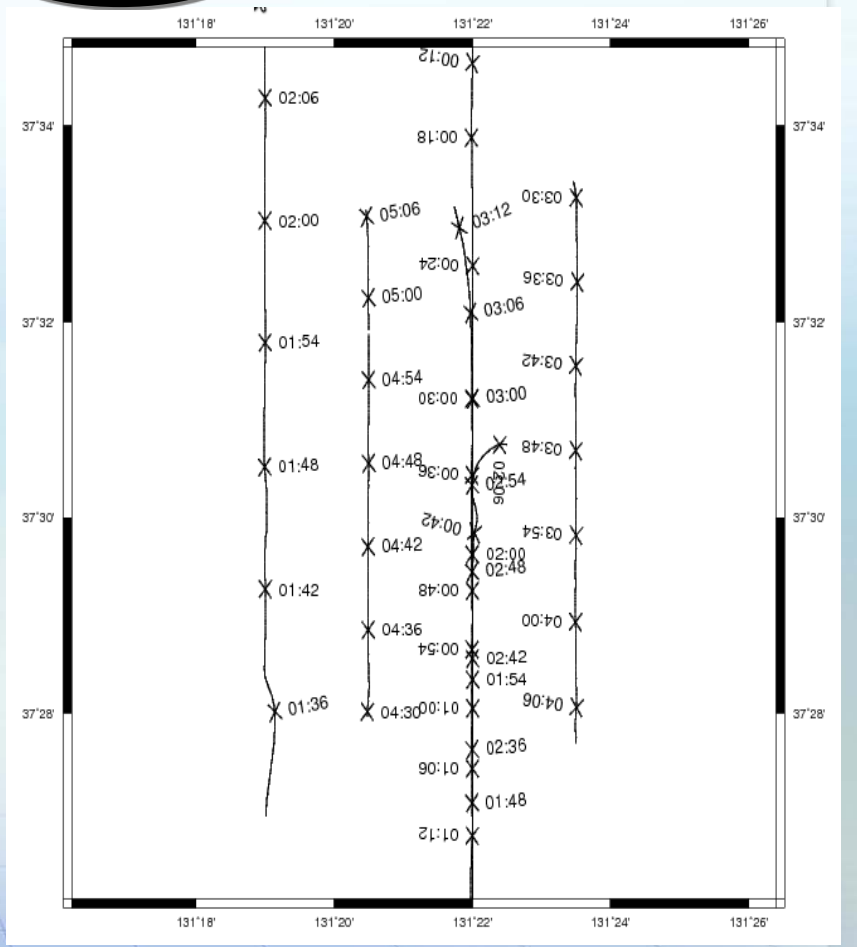
MB-Data processing

Plot

- mbm_grdplot
- mbm_grd3dplot
- **mbm_plot**

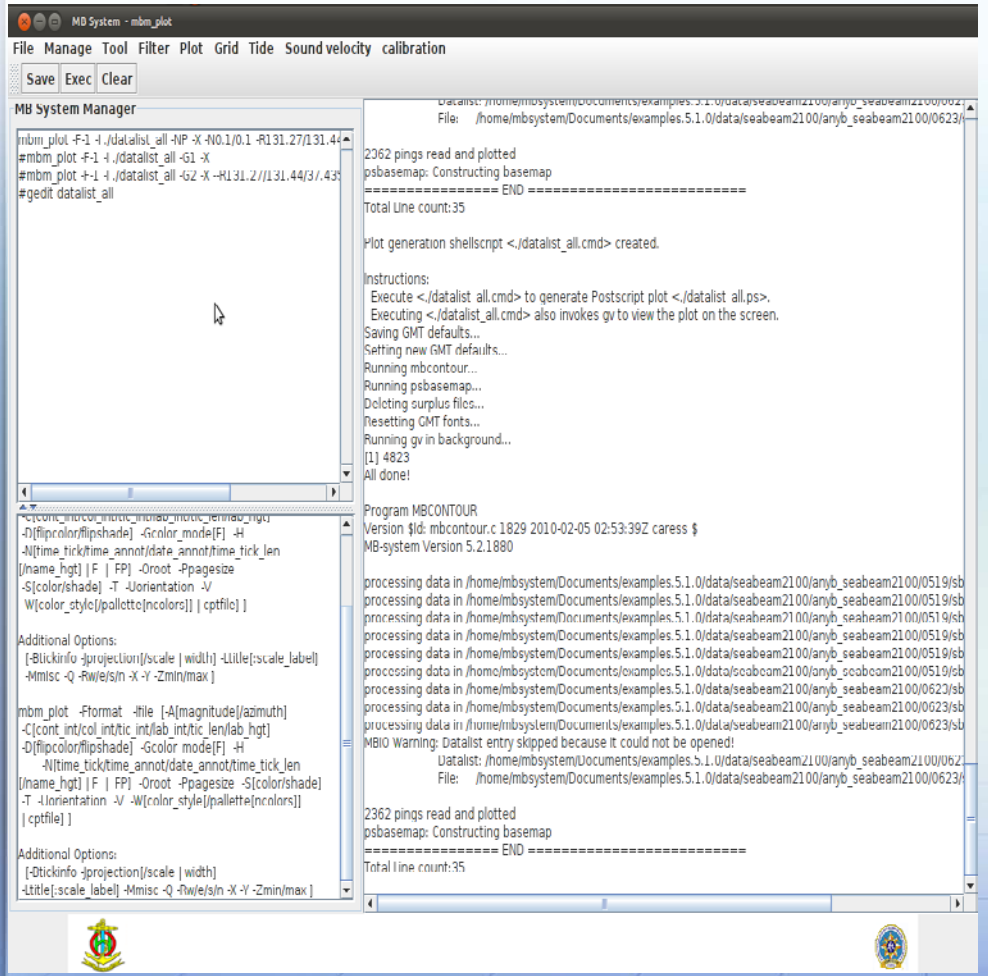


Track-line

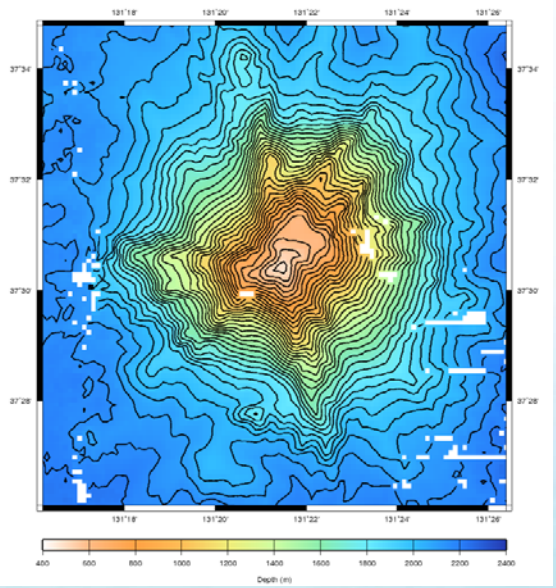


MB-Data processing

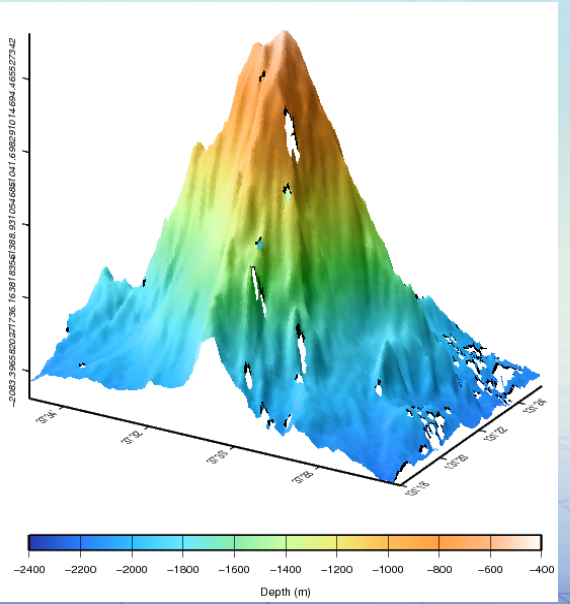
- Grid
  - mbm_gridplot
  - mbm_grid3dplot



Grid_plot



3D_plot



Anyongbok seamount in East Sea

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Conclusions

- To develop UI for MB-System using open source is the aim of this project. Although Some of programs in MB-system package are not fully expressed in MBM, It shows meaningful performance and results.

- The JAVA program is designed by the full-down menu method, so all users could easily understand the source code. To use this application for better, I put the storable and editable function, so processed scripts files can be reused.

- Also I am releasing the digital source code of the MBM program for all users in the attachment and, if necessary, you can modify and compile the source code.

- I hope MBM UI application could contribute to the development of the hydrographic fields .

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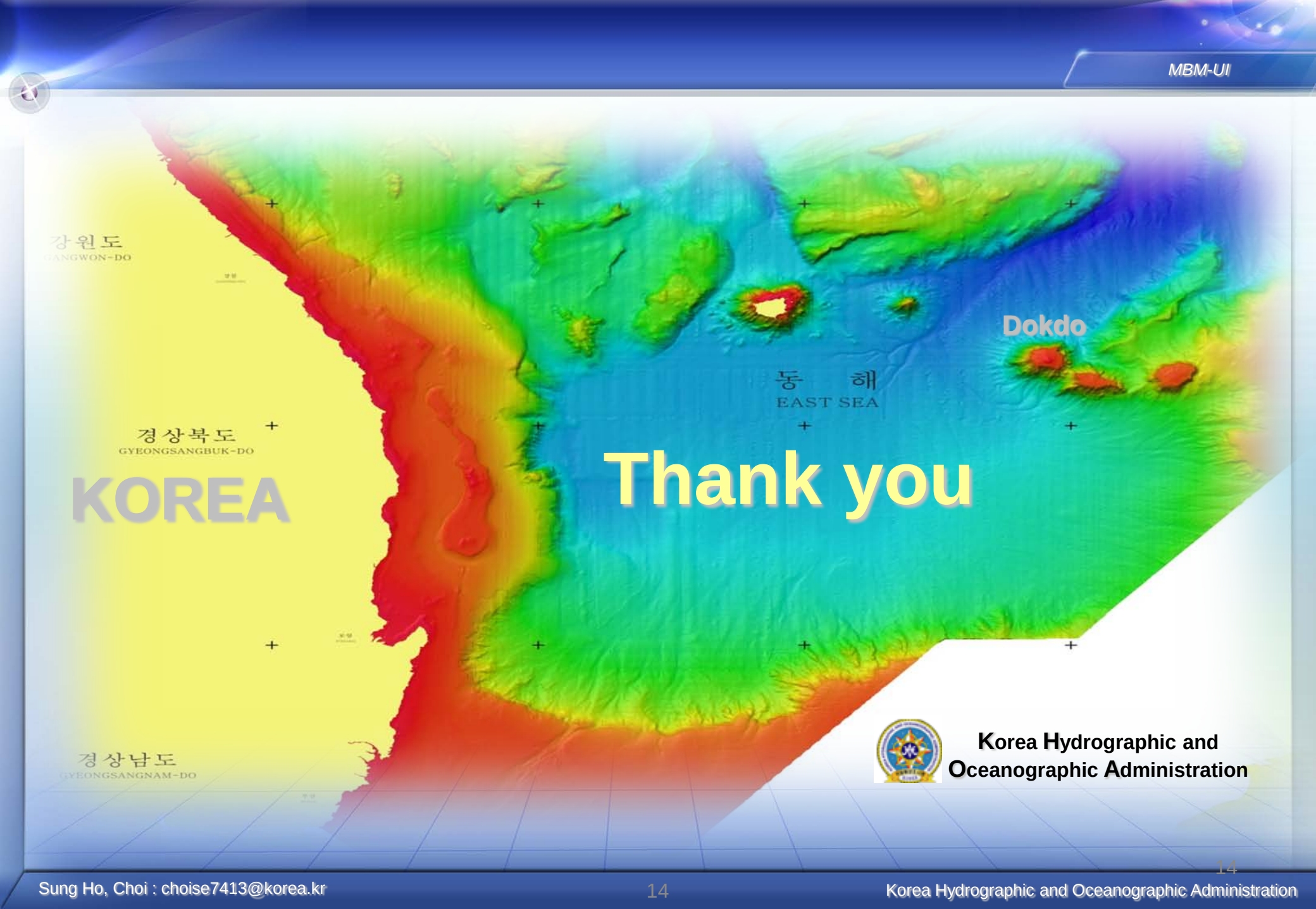

Thank you

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