



## Task 1

# User Services and Mission Planning

---

**Title:** CUT Software Administrator and Operator Manual

**Written by:** Francesco Macri'  
**Company:** Taitus Software Italia srl

---



---

## Abstract

This Software Administrator and Operator Manual reports the procedures for the administrator of the CUT tool including configuration of the application.



---

## Table of Contents

1	Introduction.....	6
1.1	Purpose.....	6
1.2	Scope .....	6
1.3	CUT Overview .....	6
1.4	Document overview .....	8
2	Applicable & Reference Documents .....	9
2.1	Applicable Documents .....	9
2.2	Reference Documents .....	9
3	Acronyms and Definitions .....	10
4	Software Delivery and Prerequisites .....	11
4.1	Delivery.....	11
4.2	CUT Requirements .....	11
5	Installation on Runtime Environment.....	12
6	Software Update Server.....	13
7	ROEF Update Server .....	14
8	Create the index file .....	15



## Document Signature Table

	Name	Company	Signature	Date
<b>Author</b>	Francesco Macri'	Taitus Software Italia srl		04/09/2012
<b>Authorization</b>	Stephen Wu	Taitus Software Italia srl		04/09/2012
<b>Approval</b>				

## Document Status Sheet

Issue	Date	Comments
1.0	22/11/2010	First Release
1.1	11/03/2011	Update of CUT 2.0.3 version
1.2	03/08/2012	Update of CUT 3.0.0 version
1.3	04/09/2012	Update for NCRs.

## Document Change records made since last issue

Issue/ Rev	Reason for change	Involved Paragraph	Type of modification
1.0	First Release		
1.1	Change of the ROEF file naming convention	7	Change the name of ROEF file name
	Remove the dependency from Microsoft .NET framework 2.0	4.1, 4.2	
1.2	CRQ000000014839	8	Add chapter to describe the index file generation.
1.3	[Bug 593]	6	Add missing information for the software update server
	[Bug 595]	7	Add missing information for the ROEF update server

# Maintenance and Operations of Earth Observation



Title: CUT Software Administrator and Operator Manual

Contract Ref.: ESA/Esrin 19049/05/1-OL

Doc. Ref.: TTS-CUT-SAOM-001

Consortium Ref

Issue: 1 Rev.: 3

Date: 03/09/2012



---

	[Bug 597]	8	Add missing information on the index file creation
--	-----------	---	--



## 1 Introduction

### 1.1 Purpose

This Software Administrator Manual describes the procedures to configure the CUT application.

### 1.2 Scope

The scope of this document is to cover the activities performed by the CUT Administrator.

The current document applies to the CUT (Cryosat User Tool) application. The current edition of the document applies to CUT 3.0.1 and will be applicable to newer software versions until a newer document version is made available.

### 1.3 CUT Overview

The Cryosat User Tool (CUT) is a Windows stand-alone application for the display of Cryosat-2 product locations and zones with an integrated product archive browser and downloader. Connection to one or more FTP servers allows for remote access of the products.

The CUT has an intuitive and user-friendly graphical user interface allowing for simultaneous product visualisation geographically on a 3D world map and temporally on a Gantt chart. The product display can be customised by filtering based on time and by region(s).

Some of the CUT features include:

- Full featured Windows (2000/XP/Server/Vista/7) application with advanced user interface.
- Concurrent map, Gantt chart and file detail visualisation of products.
- Full 3D visualization of the Earth with automatic management of level of detail (LOD) and on-demand remote download of images, similar to Google Earth and Worldwind applications.
- Terrain display using digital elevation models (DEM).
- Selection of a number of thematic maps from different sources using high-performance map-tiling technology and open-standard WMS protocols.
- Import of industry-standard shapefiles and manual creation of user-defined areas for display and for filtering of products.
- Filtering of product display by time using a calendar or orbit range.
- Display of a realistic 3D satellite model of Cryosat.
- Use of ROEF in orbit propagation and product footprint calculations.



- Automatically reconnecting FTP client capable of accessing and downloading Cryosat products from remote FTP servers.
- FTP site manager used to store multiple FTP site addresses and credentials.
- Check for Updates capability to download the latest ROEF and software version.



Figure 1: CUT Splash Screen.



Figure 2: CUT Screen.



---

## 1.4 Document overview

This document is divided into the following chapters:

- This chapter describes the purpose and the scope of this SAOM and provides an overview for the rest of the document.
- Chapter 2 reports the list of Applicable & Reference Documents.
- Chapter 3 reports the list of Acronyms.
- Chapter 4 reports hardware and software requirements for running the system
- Chapter 5 provides the steps that must be done to install CUT in the target environment.
- Chapter 6 describes the procedure to configure the software update server.
- Chapter 7 describes the procedure to configure the ROEF update server.
- Chapter 8 describes the procedure to generate the index file.





---

## 2 Applicable & Reference Documents

### 2.1 Applicable Documents

- [A1] Mission and User Requests Management (MURM) Software Requirements Document, Issue 1.9, 04/09/2012.
- [A2] ECSS – Space engineering – Software. ECSS-E-ST-40C, 06/03/2009.

### 2.2 Reference Documents

- [R1] CUT Software User Manual (packaged with CUT software). Issue 3.0.1, 06/09/2012.



## 3 Acronyms and Definitions

ADD	Architecture Design Document
ATR	Acceptance Test Report
ATS	Acceptance Test Specification
CUT	Cryosat User Tool
EO	Earth Observation
ESA	European Space Agency
ESRIN	European Space Research Institute
FTP	File Transfer Protocol
GUI	Graphic User Interface
HMI	Human Machine Interface
ICD	Interface Control Document
ROEF	Reference Orbit Event File
SRD	Software Requirements Document



## 4 Software Delivery and Prerequisites

### 4.1 Delivery

The CUT software is delivered as:

- a self-installing Windows (XP, Vista, 7) application named "CUT <x.y.z>.exe" where the tag **x.y.z** represents the current CUT version.

**The installation procedure requires administrator privileges.**

### 4.2 CUT Requirements

The following tables reports the resources needed to install CUT.

ID	Requirement	Comment
[HW-01]	CPU: Intel Pentium III, 1 GHz or AMD Athlon or higher)	
[HW-02]	RAM: 256 MB	
[HW-03]	Disk space: 100 MB	

Table 1: Hardware Requirements for CUT

ID	Requirement	Comment
[SW-01]	FTP connection to product repositories	
[SW-02]	HTTP connection to software update connection	
[SW-03]	Windows XP, Vista or 7	
[SW-04]	DirectX 9.0 (updated to at least 06/2012)	Installer installs this as needed.
[SW-05]	Microsoft .NET Framework 4.0	Installer installs this as needed.

Table 2: Software Requirements for GEST

ID	Requirement	Comment
[NT-01]	FTP connection to product repositories	
[NT-02]	HTTP connection to software update connection	
[NT-03]	HTTP connection to map server ( <a href="http://savoir.esa.int/">http://savoir.esa.int/</a> )	

Table 3: Network Requirements for GEST



---

## 5 Installation on Runtime Environment

If there are existing versions of CUT, uninstall it, as a precautionary measure, using the following command:

- Start -> All Programs -> Taitus Software -> CUT -> Uninstall CUT

Delete the folder C:\Documents and Settings\\Application Data\Taitus Software\CUT.

Once the prerequisite software has been installed, download the installation package and double-click on the new file and follow the instructions.



## 6 Software Update Server

The CUT software checks for newer versions of the software using the URL found in Edit > Properties, Check for Updates, Software Update Location (defaulted to be <http://savoir.esa.int/OnlineUpdates/CUT/VersionInfo.xml>). As such, this file must be present on the software update server with the corresponding path and file name. On this HTTP server, create an XML file for describing the latest software version number and the download location as follows:

```
<?xml version="1.0" encoding="UTF-8"?>
<LatestVersion>
  <Software>CUT</Software>
  <Version>4.0.1.0</Version>
  <Installer>http://savoir.esa.int/downloads/CUT/4.0.1 /setup.exe</Installer>
</LatestVersion>
```

Change <Installer> to point to the new installer to download. The file must be readable via the HTTP web server as the CUT application will read it and compare the version information with its own. CUT does not update the file on the server.



## 7 ROEF Update Server

Periodically, new ROEF files are generated by ESA to provide orbit information covering additional periods in the future of the mission. In general, the ROEF covers only a few months and does not contain the orbit information for the entire mission. This is fine for mission planning but since CUT deals with historic data in the archive, the orbit information for the entire history of the mission is needed. In order to minimise the software complexity and costs, it was decided that the merging of the ROEFs would be done as a manual task by Taitus under the Frame Contract. Once this "complete" ROEF is created, it is published and made available to all CUT instances on an FTP server (via the O&M team). The CUT software checks for newer versions of the ROEF and downloads it as necessary. The parameters for this check are found in Edit > Properties, Check for Updates, Check for Updates for ROEF and are configured with the following defaults:

- Server: calval-pds.cryosat.esa.int
- Port: 21
- User Name: ground
- Password: tracks
- Root Directory: ReferenceOrbitForCUT

The ROEF update is performed using FTP and requires that the folder and all ROEF files be readable. CUT does not update the file on the server.

The version is derived from the name of the file. The format of the file name is:

CUT\_ROEF\_<yyyymmddThhmiss>\_\_<yyyymmddThhmiss>\_<vvvv>.cut

where <vvvv> is the version of the ROEF file. If there is a version of the file on the FTP server that is greater than the local one, then the update is performed. When a new ROEF file is produced, it is sufficient that higher version number is used to update all CUT instances. With the default parameters above, this file must be located under the ReferenceOrbitForCUT folder in the home folder of the FTP account.



## 8 Create the index file

Starting with version 3.0.0, CUT has upgraded the way in which the FTP server can be explored in order to improve the network performance.

After connecting to the FTP server, CUT checks for the presence of a file called ".CUT\_index.zip" that details the entire contents of the FTP server. If it is available, it is downloaded and used by CUT to provide a cached view of the FTP server, eliminated the need to access the server for getting file lists. If this file is not available, CUT will navigate the FTP server as in the past using the standard FTP commands.

If the index file is available, CUT will also provide a search functionality, allowing the user to provide search criteria for finding products of interest.

To generate this file, it is necessary to run a script (CUT\_index\_generation.csh) with the following commands under the Unix/Linux system from the home folder of the FTP server.

```
find -printf "%y\t%h\t%f\t%s\t%T+\n" > .CUT_index.txt
zip -l .CUT_index_temp.zip .CUT_index.txt
mv -f .CUT_index_temp.zip .CUT_index.zip
```

This file needs to be generated periodically (daily?) in order to reflect the changes on the FTP server. It is suggested to use the standard cron facility to run the commands (refer to the "man" help pages). Since the index file is the view of the FTP server presented to the users, it should be updated whenever a change is made in the file system (e.g. a new folder is created or new products are added), Note that the downloading of the product files are done directly from the file system and not from the index file. Hence, any product deletions or changes to the folder structure should be followed by an index file update in order to avoid errors with files not being found.