CAMOS - Working Arrangements

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Author: Eurocontrol
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## Traffic Light Protocol (TLP\(^1\)) Applicable Classification

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\(^{1}\) Reference: www.first.org/tlp
Document Control

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Document Approval

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<td>Axel Werner</td>
<td>SRS SQS Manager</td>
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<td>Marian Jancik</td>
<td>Acting ARTAS Safety &amp; Security Manager</td>
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Distribution List

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Edition 6.00
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# Table of Contents

1 DOCUMENTATION .......................................................................................................................... 7
   1.1 APPLICABLE DOCUMENTS ........................................................................................................ 7
   1.2 REFERENCE DOCUMENTS .......................................................................................................... 7

2 INTRODUCTION .............................................................................................................................. 9
   2.1 SCOPE OF THE DOCUMENT .................................................................................................. 9
   2.2 STEERING GROUPS AND WORKING MATERIALS ................................................................ 9
   2.2.1 ARTAS User Group (AUG) ................................................................................................. 9
   2.2.2 Configuration Control Board (CCB) .................................................................................. 9
   2.2.3 ARTAS User Forum (AUF) ............................................................................................... 9
   2.2.4 Minutes and working material .......................................................................................... 9

3 COMMUNICATION CHANNELS .................................................................................................... 10
   3.1 ONE SKY TEAMS ................................................................................................................... 10
   3.1.1 Registration ....................................................................................................................... 10
   3.1.2 “ARTAS Sharepoint” library ............................................................................................ 12
   3.1.3 “ARTAS Sharepoint” notifications .................................................................................. 13
   3.2 ARTAS SUPPORT DATABASE (MANTIS) ............................................................................. 15
   3.2.1 How to subscribe to ARTAS Support Database ............................................................... 15
   3.2.2 ATR (ARTAS Trouble Report) ......................................................................................... 15
   3.2.3 ACP (ARTAS Change Proposal) ..................................................................................... 16
   3.2.4 CAMOS Support ............................................................................................................. 17
   3.2.5 ATR & ACP Clones ......................................................................................................... 17
   3.3 ARTAS DASH BOARD (iCAMOS) ......................................................................................... 17
   3.3.1 iCAMOS “Event” Window ................................................................................................. 18
   3.3.2 iCAMOS “HTTP download” Window ............................................................................... 19
      3.3.2.1 ARTAS Releases and Updates .................................................................................. 19
      3.3.2.2 ARTAS Patches ........................................................................................................ 20
      3.3.2.3 Unreleased Patches .................................................................................................. 21
      3.3.2.4 Documentations ....................................................................................................... 22
      3.3.2.5 Tools ......................................................................................................................... 22
      3.3.2.6 Tests (Test Description, Result and CRAFT Scripts) ............................................. 24
   3.3.3 iCAMOS “HTTP Upload” Window ................................................................................... 25
      3.3.3.1 Camos_and_ip folder .............................................................................................. 25
      3.3.3.2 Public folder ............................................................................................................. 25
   3.3.4 How to subscribe to ARTAS Dash BOARD ........................................................................ 25

3.4 EMAIL ......................................................................................................................................... 26
3.5 PHONE ....................................................................................................................................... 26

A.1 DATA PREPARATION FOR ATR/ACP/ASR ANALYSIS ............................................................. 27
A.2 ASTERIX FINAL FORMAT ......................................................................................................... 29
A.3 PATCH NAMING CONVENTION ................................................................................................. 29
   A.3.1 patches for ARTAS up to v8b3-U2 .................................................................................. 29
   A.3.2 patches for ARTAS v8b4 and later ................................................................................. 30

# List of Figures

Figure 1 - One Sky Online - Login page .......................................................................................... 10
Figure 2 - Service selection - OneSky Teams .............................................................................. 11
Figure 3 - Access to “All teams” .................................................................................................... 11
Figure 4 - List of Teams ............................................................................................................... 12
Figure 5 - ARTAS SharePoint-Library - USER ............................................................................. 12
Figure 6 - ARTAS SharePoint-Library - DOCUMENTATION MANAGEMENT ............................. 13
Figure 7 - Alerts management ...................................................................................................... 13
Figure 8 - Open with Window Internet Explorer ......................................................................... 14
Figure 9 - Reporting ATR 1/2 ...................................................................................................... 16
Figure 10 - Reporting ATR 2/2 .................................................................................................... 16
Figure 11 - Jumping to ATR ...................................................................................................... 17
Figure 12 - Selection list for cloned ATRs ................................................................................... 17
Figure 13 - iCAMOS .................................................................................................................... 18
Figure 14 - Event window of iCAMOS ......................................................................................... 19
Figure 15 - How to register to an event in the Event window of iCAMOS ................................ 19
Figure 16 - List of ARTAS artefacts related to ARTAS V8B3-U2....................................................... 20
Figure 17 - List of ARTAS emergency patches related to ARTAS V8B3-U2........................................ 21
Figure 18 - List of ARTAS unreleased patches related to ARTAS V8B3-U2........................................ 22
Figure 19 - Documentation folders ..................................................................................................... 22
Figure 20 - Tools folders .................................................................................................................... 23
Figure 21 - Tools available in /Users/tools_no_license................................................................. 23
Figure 22 - Tests folders .................................................................................................................... 24
Figure 23 - List of the “HTTP upload” subfolders .............................................................................. 25
Figure 24 - ASTERIX Final Format .................................................................................................... 29
1 Documentation

1.1 Applicable Documents

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<td>ARTAS-MGT-STR-01</td>
<td>ARTAS ROADMAP STRATEGY</td>
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<tr>
<td>[RD3]</td>
<td>ARTAS-CSOM</td>
<td>ARTAS Computer System Operator’s Manual (CSOM) of the applicable ARTAS VERSION Release</td>
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<td>[RD4]</td>
<td>ARTAS-ASTX</td>
<td>ARTAS Application of ASTERIX to ARTAS (ASTX) of the applicable ARTAS VERSION Release (as from V8B4-U1)</td>
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2 Introduction

The main task of the CAMOS team is to provide support and maintenance for Users of the ARTAS System. This is done by providing advice, clarifications, patch releases and the distribution of new versions of the ARTAS System with associated documentation.

2.1 Scope of the document

This document was created to address Action AUG-32-A-13, by providing the current and new ARTAS Users with an introduction to the working arrangements and the means of communication with the CAMOS Team.

Communication channels with CAMOS are presented in Section 3:

- 3.1 One Sky Teams
- 3.2 ARTAS Support database (MANTIS)
- 3.3 ARTAS Dash Board (iCAMOS)
- 3.4 Email
- 3.5 Phone

2.2 Steering Groups and working materials

2.2.1 ARTAS USER GROUP (AUG)

The AUG is the official ARTAS steering group. Please refer to [RD6] for the AUG Terms of Reference.

2.2.2 CONFIGURATION CONTROL BOARD (CCB)

The CCB is the technical subgroup of the AUG therefore, [RD6] applies here too.

2.2.3 ARTAS USER FORUM (AUF)

The AUF is an informal forum for the ARTAS Users to voluntarily share experience, procedures and to discuss related issues.

2.2.4 MINUTES AND WORKING MATERIAL

The Minutes and working material for the steering groups are published in the following One Sky Teams “ARTAS - USER” library (ref. 3.1 & 3.1.2) under
https://ost.eurocontrol.int/sites/SRSPR/ARTAS/User%20Docs/AUG_CCB.

The Actions and Decisions are listed in the following register:
3 Communication channels

3.1 One Sky Teams

One Sky Online is an agency-wide extranet that provides several services. One Sky Online is available at the following address:
https://ext.eurocontrol.int

3.1.1 REGISTRATION

To use “One Sky Online” portal, Users first need to register themselves (See Figure 1 - ).

Figure 1 - One Sky Online - Login page
One of the online services is called “One Sky Teams” (See Figure 2). An individual can be a member of many teams. They have to apply for membership of a particular team (See Figure 4). The team for ARTAS Users is the “ARTAS - SharePoint”. The application is then granted or denied by a EUROCONTROL representative “team leader”.

Figure 2 - Service selection - OneSky Teams

Figure 3 - Access to “All teams”
3.1.2 “ARTAS SHAREPOINT” LIBRARY

Users can directly access the “ARTAS SHAREPOINT” library:

https://ost.eurocontrol.int/sites/SRSPR/ARTAS/

The “ARTAS SharePoint” library (See Figure 5 - ) is divided in two sections; USER and DOCUMENTATION MANAGEMENT.

The first (USER) is mainly used to store documents of managerial character like AUG/CCB minutes, presentations etc. It is also used to collect documents related to workshops and activities of User’s interest. Additionally there are documents directly or indirectly related to ARTAS HW and SW.

Users have read-only access to documents in the “USER” folder.

The second (DOCUMENTATION MANAGEMENT), accessible via the “DOCUMENTATION MANAGEMENT User links” (Users shall never use the DOCUMENTATION MANAGEMENT library because of their limited access), contains the ARTAS documents referenced in MANTIS.

Users have read-only access to documents in the folders available via the “DOCUMENTATION MANAGEMENT User links”.

Figure 5 - ARTAS SharePoint-Library - USER
3.1.3 “ARTAS SHAREPOINT” NOTIFICATIONS

Users shall be automatically notified about any changes. Should this not be the case, Users can manage their own alerts (See Figure 7 - ).

Figure 7 - Alerts management

For convenient access to the documents, the “ARTAS” library can only be opened with Windows Internet Explorer (See Figure 8 - ) i.e. the above functionality does not work with other browsers e.g. Firefox, Chrome.
Figure 8 - Open with Window Internet Explorer
3.2 ARTAS Support database (MANTIS)

MANTIS is an open source issue reporting and change control system, available to the ARTAS User community.

MANTIS is available at the following address:
https://ext.eurocontrol.int/mantis/artas/login_page.php
and from the One Sky Online portal (See 3.1).

The following paragraphs give an introduction to MANTIS’ functionalities. Please refer to [RD2] “ARTAS MANTIS User Guide” for a description of the basic steps to use MANTIS as a Reporter.

3.2.1 HOW TO SUBSCRIBE TO ARTAS SUPPORT DATABASE

To subscribe to the MANTIS ARTAS Support Database, please click on this link here and send the pre-formatted email.

3.2.2 ATR (ARTAS TROUBLE REPORT)

ATRs are created to record, track and correct bugs within the ARTAS System and can be opened by any entity (CAMOS, ANSP or Industrial Partner).

In order to solve any reported problem, the CAMOS team first needs to be able to reproduce it, therefore when reporting the problem (see Figure 9 - and Figure 10 - ), the User is kindly asked to provide the CAMOS Team with as much details as possible. In particular:

- Time when the incident occurred,
- Version impacted, configuration
- Affected nodes, CSCIs (RBR, TRK, …), Chains, services, LANs, radars etc.,
- Dataset in xml format or Database in savedb format,
- Input/Output recording in ASTERIX Final Format,
- Related parameter files,
- XtermLogs or other related log files,
- Steps to reproduce the error/crash,
- Platform being used i.e. Implementation Type.

Notes:

- To transfer large files like databases or datasets, the User should use iCAMOS (See 3.3) rather than MANTIS.
- Please refer to Annex A.1 for details on the preparation of data to be provided with an ATR.

The ARTAS dataset or database and sensor recordings are crucial for the reproducibility of most of the problems. If not provided, the CAMOS Team may not be able to investigate the problem and ATR may be simply not processed and/or rejected as non-reproducible.
3.2.3 ACP (ARTAS CHANGE PROPOSAL)
An ACP is opened when a User would like to request a change to the existing ARTAS System. The ACP can only be opened by an ANSP or the CAMOS Team.

3.2.4 CAMOS SUPPORT

CAMOS Support is the means by which a User can request assistance, advice or support on a particular issue not initially linked to an ATR/ACP.

Support can be any type of technical question or request for support as defined in the SLA (e.g. Installation, participation to SAT ...). If the technical question/problem however reveals a bug, the support issue would be changed into an ATR. Alternatively, the support request might be changed into ACP.

The Support also aims at building up a “Knowledge base” – a database of problems and solutions that Users could face during the daily usage of an ARTAS System.

3.2.5 ATR & ACP CLONES

ATRs and ACPs are linked to a particular ARTAS version. When an ATR or ACP is reported, the User has to select the ARTAS version where the issue was observed via the field “Product version”.

The purpose of tying both ATRs and ACPs to an ARTAS version is to be able to identify at any time which ATRs/ACPs are solved or opened in any ARTAS version.

CAMOS may clone an ATR or ACP when it needs to be implemented on several ARTAS versions. Cloned ATRs or ACPs have the same ATR number but a different version extension (e.g. ATR1500-V7A1 and ATR1500-V8A0). Both will be treated separately and follow their own corrective lifecycle.

The result is visible i.e. when trying to select a particular ATR or ACP (see Figure 11 - )

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<td>Track selector Aircraft Types less than 4 characters not working</td>
</tr>
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<td>ATR1500-V8A0</td>
<td>V8A0</td>
<td>Track selector Aircraft Types less than 4 characters not working</td>
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Figure 11 - Jumping to ATR

There might be several existing issues with the same number but with different versions. (See Figure 12 - ).

A User has to simply choose the one of his interest.

3.3 ARTAS Dash Board (iCAMOS)

iCAMOS, available at the following addresses: https://ext.eurocontrol.int/srs-camos/isrs (new) https://ext.eurocontrol.int/icamos (old)

is a web interface to manage events, send emails and upload/download files, available to the ARTAS User community.

The following Figure 13 - shows the iCAMOS main page:
The iCAMOS dashboard is the main means for the distribution of ARTAS VERSION RELEASEs, ARTAS UPDATEs, patch bundles, emergency patches, tools, tests and documentation. Also, it serves as a means to exchange the necessary data for the analysis of Support Requests, ATRs or ACPs (e.g. sensor recordings, datasets, databases, parameters ...).

Additionally, it allows CAMOS to present the forthcoming events related to ARTAS activities and/or deliverables.

The iCAMOS consists of 3 main windows:

- The first one, called “Events”, presents the list of ARTAS events (e.g. AUG/CCB dates along with the provisional dates and content of the ARTAS FATs, Releases, Updates and Emergency Patches. Whenever needed (e.g. AUG/CCB, FATs), iCAMOS Users will be requested to subscribe to ARTAS events.

- The second one, called “HTTP download”, allows iCAMOS Users to access and download ARTAS artefacts (e.g. Patches, documentations and tools).

- The third one, called “HTTP upload”, allows iCAMOS Users to upload data relevant to the analysis of Support Requests, ATRs or ACPs. In addition, the upload windows can be used to share data with other iCAMOS Users.

The access to iCAMOS is provided on request to the CAMOS Team (see 3.3.4). In addition, through iCAMOS, the CAMOS Team might grant different access level to ANSPs, CAMOS Industrial Partners and Industry therefore, the view or access list might be different for each User.

3.3.1  ICAMOS “EVENT” WINDOW

The “Events” window lists the upcoming ARTAS events (e.g. AUG/CCB and FATs dates) and provides the provisional dates and content of the upcoming CAMOS deliveries (e.g. Provisional date and content of ARTAS V8B4-U1 and V8B3-U2 Emergency Patches)

The following Figure 14 - show the content of the Event window of iCAMOS:
Whenever requested, User shall subscribe to ARTAS events. The following Figure 15 - shows how to subscribe to an ARTAS Event in the Event window of iCAMOS. The User has to double click on the event and then select the appropriate answer.

Figure 15 - How to register to an event in the Event window of iCAMOS

3.3.2 ICAMOS “HTTP DOWNLOAD” WINDOW

3.3.2.1 ARTAS Releases and Updates

The officially supported ARTAS Releases and Updates are available within:

- /Users/release/{ARTAS_Version}/{ARTAS_Release} or
- /Users/release/{ARTAS_Version}/{ARTAS_Update}
e.g. /Users/release/V8B/V8B2 or /Users/release/V8B/V8B3-U2

as shown in Figure 16 - below.

Figure 16 - List of ARTAS artefacts related to ARTAS V8B3-U2

The ARTAS Release and the ARTAS Updates consist of:

- a compressed image (V8B3-U2_1.img.gz) the md5 checksums of the image (V8B3-U2_1.img.gz.md5). This image might contain the initial patches.
- the so called "extras" tarball (V8B3-U2_1-extra.tar.gz) and its md5 checksums (V8B3-U2_1-extra.tar.gz.md5)

The extra tarball contains files or tools related to ARTAS that do not have to be installed on the ARTAS servers.

Currently, it contains ARTAS MIBs (artas.my and artasTrap.my) and a tool “artas-acp234-radar-export-1.2.tar.gz” (only for ARTAS Versions prior to V8B3).

3.3.2.2 ARTAS Patches

The officially supported ARTAS patches are available within:

- /Users/patches/{ARTAS_Version}/{ARTAS_Release} or
- /Users/patched/{ARTAS_Version}/{ARTAS_Update}

e.g. /Users/patches/V8B/V8B2 or /Users/patches/V8B/V8B3-U2

as shown in Figure 17 - below.
Each ARTAS Emergency Patch consists of a compressed image (V8B3-U2_Emergency_Patch_5.tgz) and the md5 checksums of the image (V8B3-U2_Emergency_Patch_5.tgz.md5). The detailed patch naming convention is described in annex A.3 PATCH NAMING CONVENTION.

The released patches are accompanied with a ReadMe (RM) document (ARTAS-V8B3-U2-EP5-RM-V1-00-signed.pdf) that describes how to install the patches.

3.3.2.3 Unreleased Patches

The unreleased patches subfolders contains patches (including Check Points and Release Candidates) that are being verified by CAMOS and tested by the ARTAS Users prior their official release.

Those patches must only be used for testing and validation purposes. They are available within:

- /Users/unreleased_patches/{ARTAS_Version}/{ARTAS_Release} or
- /Users/unreleased_patches/{ARTAS_Version}/{ARTAS_Update}
  e.g.  /Users/unreleased_patches/V8B/V8B2 or  /Users/unreleased_patches/V8B/V8B3-U2

as shown in Figure 18 - below.
3.3.2.4 Documentations

The officially supported documents are available within:

- `/Users/doc/{ARTAS_Version}/{ARTAS_Release}` or
- `/Users/doc/{ARTAS_Version}/{ARTAS_Update}`

  e.g. `/Users/doc/V8B/V8B2` or `/Users/doc/V8B/V8B3-U2`.

as shown in Figure 19 - below.

3.3.2.5 Tools

Provided tools are available within:
• /Users/tools_license or
• /Users/tools_no_license

The former folder grants Users with access to those tools for which a Licence Agreement has to be signed. The latter contains all other tools.

The Figure 20 - below shows the tools folders whereas Figure 21 - below shows the tools available in the /Users/tools_no_license.

Figure 20 - Tools folders

Figure 21 - Tools available in /Users/tools_no_license
3.3.2.6 Tests (Test Description, Result and CRAFT Scripts)

Test evidences are available within:

- /Users/{ARTAS_Release}/(test-[POST])/ACP
- /Users/{ARTAS_Release}/(test-[POST])/ATR
- /Users/{ARTAS_Release}/(test-[POST])/REGRESSION or
- /Users/{ARTAS_Update}/(test-[POST])/ACP
- /Users/{ARTAS_Update}/(test-[POST])/ATR
- /Users/{ARTAS_Update}/(test-[POST])/REGRESSION

The first three folders contain the “test” folder test descriptions, test results and CRAFT scripts related to an ARTAS Release whereas the “test-POST” folder contains the evidences just mentioned for Emergency Patches.

The second 3 folders contain the evidences mentioned above for an ARTAS Update.

The Figure 20 - below lists the documents available for one of the ACP 297 tests (related to ARTAS V8B2).

![Figure 22 - Tests folders](image-url)
3.3.3 ICAMOS “HTTP UPLOAD” WINDOW

The investigation of ATRs, ACPS and Support Requests usually requires sensor recordings, datasets (or database), parameter files etc. (see also A.1). These data can be uploaded via the “HTTP upload” window of iCAMOS to:

- `{User}/camos_and_ip`, or
- `{User}/public`

as shown in Figure 23 - below.

![Figure 23 - List of the “HTTP upload” subfolders](image)

3.3.3.1 Camos_and_ip folder

The camos_and_ip folder ({User}/camos_and_ip) is the main directory where Users have to upload their data. To protect the data from unauthorised usage, the Users can only upload their files, without seeing the content of the directory.

Please note that this visibility restriction has also a side effect; if the upload is cancelled prematurely, the truncated file cannot be deleted (by the User) and a file with a new name has to be uploaded.

The Industrial Partner has full access to this directory so that they can start the analysis immediately.

3.3.3.2 Public folder

The public folder ({User}/public) is to share data with CAMOS or with other User(s). The CAMOS Industrial Partner does not have any access to this directory.

3.3.4 HOW TO SUBSCRIBE TO ARTAS DASH BOARD

To subscribe to the ARTAS Support Database, please click on this link [here](#) and send the pre-formatted email.
3.4 Email

Each member of the ARTAS and CAMOS teams is also part of the group address camos@eurocontrol.int. We suggest to always put this group address in copy unless there are some specific reasons not to do so. This will enable the other team-mate to process your email in case the original recipient is on mission or holiday.

3.5 Phone

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAMOS team</td>
<td></td>
<td>+32 496 569 933</td>
</tr>
<tr>
<td>Antonio Principe</td>
<td>ARTAS Service Manager</td>
<td>+32 2 729 3952</td>
</tr>
<tr>
<td>Stuart Hunter</td>
<td>ARTAS Development Support</td>
<td>+32 2 729 3344</td>
</tr>
<tr>
<td>Marian Jancik</td>
<td>CAMOS System Specialist</td>
<td>+32 2 729 3552</td>
</tr>
<tr>
<td>Pierre Gomord</td>
<td>CAMOS Tracker Expert</td>
<td>+32 2 729 3421</td>
</tr>
<tr>
<td>Andrés Soto</td>
<td>CAMOS Team Member</td>
<td>+32 2 729 3088</td>
</tr>
<tr>
<td>Nikolas Zacik</td>
<td>Seconded</td>
<td>+32 2 729 3357</td>
</tr>
<tr>
<td>Simon Holoda</td>
<td>Student</td>
<td>+32 2 729 3421</td>
</tr>
</tbody>
</table>
A.1 DATA PREPARATION FOR ATR/ACP/ASR ANALYSIS

This Annex identifies the expected format for the data to be provided with an ATR and describes procedures to record them.

- **Database (for ARTAS up to V8B2)**
  - ARTAS database should be provided in "savedb" format.
  - As artas user run the following command:
    ```
    > su – ingres (password is Laser)
    > savedb <DB_NAME> -d /tmp/<ATR>_<ANSP>_<ARTAS_VERSION>_db_<date>
    ```
  - The resulting file is named 
    `[<ATR>_<ANSP>_<ARTAS_VERSION>_db_<date>].tar.gz`

- **StaticGeo dataset (for ARTAS as from V8B3 )**
  - Tarball of /etc/artas-repository/StaticGeo/<DATASET_NAME>
  - As artas user run the following command:
    ```
    > tar -zcf /tmp/<ATR>_<ANSP>_<ARTAS_VERSION>_<DATASET_NAME>_<YYYMMDD>.tgz
    /etc/artas-repository/StaticGeo/<DATASET_NAME>
    ```

- **ARTAS Input/Output recordings**
  - ARTAS Input/Output recordings should be provided in ASTERIX Final Format (ref. A.2).
  - Recordings can be done directly in ASTERIX Final Format or can be converted from another format to ASTERIX Final Format.
  - CAMOS suggests using resurf tool (available on iCAMOS – Please refer to the resurf User Manual for details [RD5]) to record directly in ASTERIX Final Format.
  - Please rename ARTAS Input/Output recordings file
    `[<ATR>_<ANSP>_scenario_<date>].tar.gz`

- **Related parameter files**
  - As artas user run the following command:
    ```
    > collect_parameter_files -d /tmp/
    ```
  - Please rename the resulting file `/tmp/collected_parameter_files_<date>.tar.gz` to
    `[<ATR>_<ANSP>_<ARTAS_VERSION>._params_<date>].tar.gz`.
  - Please refer to [RD3] section 5.2.10 CONFIGURATION INFORMATION RETRIEVAL for more information about the command.

- **XtermLogs or other related log files**
  - As artas user run the following command:
    ```
    > collect_log_files -s 0 -d /tmp/
    ```
  - Please rename the resulting file `/tmp/collected_log_files_<date>.tar` to
    `[<ATR>_<ANSP>_<ARTAS_VERSION>._logs_<date>].tar`
  - Please refer to [RD3] section 5.2.9 LOG FILE ANALYSIS for more information about the command.

- **XtermLogs or other related log files (for ARTAS as from V8B4 )**
  - As artas user run the following command:
    ```
    > artas_collect -o /tmp/```
Please rename the resulting file /tmp/artas-collect_<date>.tar.xz to
[<ATR>_]<ANSP>_<ARTAS_VERSION>_logs_<date>.tar

Please refer to [RD3] section 5.2.9 COLLECTING LOG FILES for more information about the command.

Recorded data should be uploaded to iCAMOS (ref. 3.3).
A.2 ASTERIX FINAL FORMAT

ASTERIX Final Format is defined as follow (ref. [RD4]):

Final file format

- One or more
  - Final records

Final record format

- Byte count 1 MSB
- Byte count 2 LSB
- Error code
- Board/Line No
- Recording day
- Time MMSB 0.01 s
- Time MSB 0.01 s
- Time LSB 0.01 s
- One or more
  - Asterix data blocks
    - Pad 0xA5
    - Pad 0xA5
    - Pad 0xA5

Figure 24 - ASTERIX Final Format

A.3 PATCH NAMING CONVENTION

This Annex describes the types of patches and their naming convention.

A.3.1 PATCHES FOR ARTAS UP TO V8B3-U2

# REPRESENTS AN ASCII NUMBER

- Standard Patches
  
  <ARTAS_VERSION>_>_CSCI>_#_[ATR|ACP]#_1-bin.tar.gz

  E.g. V8B1_TRK_11_ATR1802_1-bin.tar.gz

- Patch Bundles

  <ARTAS_VERSION>_CAMOS_bundle<Bundle#>.tar.gz
E.g. V8B1_CAMOS_bundle2.tar.gz

or

<ARTAS_VERSION>_Emergency_Patches_<Bundle#>.tar.gz

E.g. V8B3-U2_Emergency_Patch_4.tar.gz

- **Patch Sets**
  
  <ARTAS_VERSION>_PATCHSET#_#-bundle.tar.gz

  E.g. V8B_PATCHSET1_1-bundle.tar.gz

- **Patches for Patch Installer**
  
  PATCH-INSTALLER_.#.tar.gz

### A.3.2 PATCHES FOR ARTAS V8B4 AND LATER

As from ARTAS V8B4, standard RPM (RedHat Package Manager) is used instead of the previous proprietary format.

- **Standard Patches**
  
  <ARTAS_PACKAGE>-<VERSION>-<ATR|ACP|CP_#>.x86_64.rpm

  e.g. artas-migrate-8.B.4.1.ATR1234.x86_64.rpm

The patches, patch bundles, update and emergency patches are cumulative unless stated otherwise.