

SUN/271.0

Starlink Project  
Starlink User Note 271.0

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**Wesley — Pre-processing  
mode for ORAC-DR  
Version 1.0.0  
User's Guide**

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## Abstract

WESLEY is a pre-processing pipeline. It is intended to apply corrections to raw data files which may be necessary prior to reduction with ORAC-DR.

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## 1 Introduction

The ORAC-DR pipeline is a suite of recipes and primitives for the automated processing of raw instrument data into scientifically-usable products. However for some observations there may be issues with the raw data files which prevent them from being able to be processed appropriately.

Wesley is a pre-processing pipeline (actually a special mode of ORAC-DR) designed to apply corrections to problematic raw data. The complete data reduction process can therefore be envisioned as follows:

- (1) WESLEY  
Pre-processing (when necessary).
- (2) ORAC-DR  
Main data reduction.
- (3) PICARD  
Further analysis and combination of data (if desired).

## 2 Wesley Overview

### 2.1 Running Wesley

Wesley makes use of your current ORAC-DR environment to configure an instrument and locate files. Therefore before running Wesley, you should first set up ORAC-DR as normal. Then you can use any of ORAC-DR's options to specify observations for pre-processing. Wesley will write a list of the pre-processed files which can then be used with ORAC-DR's `--files` option. The name of this file listing is normally automatically generated, and reported by Wesley at the end of processing each observation, but it can be specified via the recipe parameter `WESLEY_FILE_LIST`. For example, observation 20 of the current night can be pre-processed and then reduced as follows:

```
$ oracdr_scuba2_850 --cwd
$ wesley --list 20 --recpars="WESLEY_FILE_LIST=preproc.lis" INSERT_JCMT_WVM_DATA
$ oracdr --files preproc.lis
```

### 2.2 Wesley Options

Wesley accepts the same command line options as ORAC-DR (see [SUN/230](#) for more information). However it is always necessary to specify the recipe name.

Some common command line options are as follows:

#### **--log sf**

Write text output to the terminal (s) and to a log file (f). Other options are an X-window (x) or an HTML log file (h).

#### **--nodisplay**

Do not open graphical display windows.

#### **--recpars file\_name**

Recipes requiring additional information can be controlled via a recipe parameters file, in INI format with one block per recipe name.

Parameters can also be given directly in place of a file name, for example:

```
--recpars="JCMT_WVM_FILE=wvm.txt,WESLEY_FILE_LIST=out.lis".
```

## A Alphabetical List of Wesley Recipes

**CLEAR\_HEADER\_SIMULATE** Clear the SIMULATE header if set.

**FILTER\_DOME\_OPEN** Filter file list by dome status.

**FIX\_HEADER\_IFFREQ** Set IFFREQ header from OCS config XML.

**FIX\_INCONSISTENT\_OBJECT** Set OBJECT header to first value from group.

**INSERT\_JCMT\_WVM\_DATA** Put WVM data into raw JCMT files.

## **B Specifications of Wesley Recipes**

The following pages describe the current WESLEY recipes in detail.

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**CLEAR\_HEADER\_SIMULATE**  
**Clear the SIMULATE header if set**

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**Description:**

This recipe can be used to unset the SIMULATE FITS header.



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**FILTER\_DOME\_OPEN**  
**Filter file list by dome status**

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**Description:**

This recipe checks the DOORSTST, DOORSTEN, ROOFSTST and ROOFSTEN headers. Any files where these headers are not all " Open" are excluded from the output file list.

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**FIX\_HEADER\_IFFREQ**  
**Set IFFREQ header from OCS config XML**

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**Description:**

This recipe can be used to correct the IFFREQ header using the value found in the OCS configuration XML.

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**FIX\_INCONSISTENT\_OBJECT**  
**Set OBJECT header to first value from group**

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**Description:**

This recipe can be used to correct raw data where observations have been taken with inconsistent values of the OBJECT header. The first OBJECT header value found is set for all subsequent files in the group for which it differs, under the assumption that the pipeline will already have grouped the files appropriately.

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## **INSERT\_JCMT\_WVM\_DATA**

### **Put WVM data into raw JCMT files**

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**Description:**

This recipe can be used to insert JCMT WVM data into raw data files. The .wvm file for the night of the observation must be available. If the process is successful then the WVM\_T12, WVM\_T42, WVM\_T78 and WVM\_TIME components of the JCMTSTATE extension will be replaced with data from the .wvm file.

**Recipe Parameters****JCMT\_WVM\_FILE**

The file from which to read JCMT WVM data. A full path should be given if this is not in the output directory.

**JCMT\_WVM\_DIR**

If JCMT\_WVM\_FILE is not given, look for a WVM data file in this directory named by the UT date, in the form "YYYYMMDD.wvm" . If not given, then the appropriate UT date-based directory for the EAO file system is used.