

OpenCPI

File Write Demux Component Data Sheet

OpenCPI Release: v2.4.6

Summary - File Write Demux

Name	file_write_demux
Worker Type	Application
OpenCPI Release	v2.4.6
Last Update	4/2019
Component Library	ocpi.assets.util_comps
Workers	file_write_demux.rcc
Tested Platforms	CentOS7, xilinx13.3 (limited)

Functionality

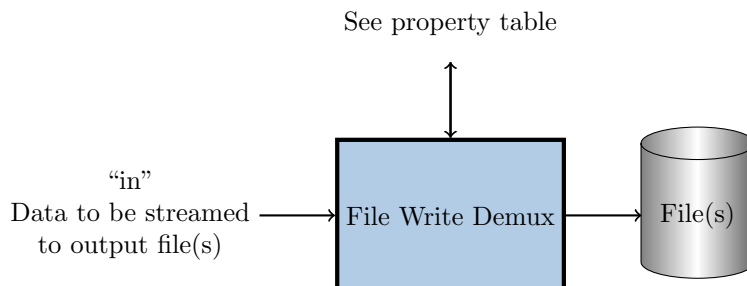
The File Writer Demux component acts as a demultiplexer/router by parsing any protocol and routing different opcodes to various output files.

The names of the files being written, along with various ways to determine the Worker's "done" status, are extremely configurable using Properties.

This Component provides *minimal* error checking and is **not recommended for production use**, but is only intended for prototyping and testing of other Components.

Block Diagrams

Top level



Source Dependencies

file_write_demux.rcc

- <assets>/components/util_comps/file_write_demux.rcc/file_write_demux.cc

Component Spec Properties

Name	Type	SequenceLength	ArrayDimensions	Accessibility	Valid Range	Default	Usage
outFile	Struct	-	-	Writable, Readable ¹	-	-	File name(s) to write to
outFile.prefix	String	1024	-	"	-	<i>None</i>	File prefix ²
outFile.digits	UChar	-	-	"	1 - 3	1	Width for opcode number output padding
outFile.suffix	String	1024	-	"	-	.bin	File suffix ²
outFile.messagesInFile	Bool	-	256	"	-	false	Write file in "message" mode with embedded opcode
current	Struct	-	-	Volatile	-	-	Current statistics for each opcode
current.Total	Struct	-	-	"	-	-	Statistics across <i>all</i> opcodes
current.Total.bytes	ULongLong	-	-	"	Standard	-	Number of bytes received
current.Total.messages	ULongLong	-	-	"	Standard	-	Number of messages received
current.Opcode	Struct	-	256	"	-	-	Statistics for <i>each</i> opcode
current.Opcode.*	Various	-	"	-	-	-	Various ³
stop0n	Struct	-	-	Writable, Readable ¹	-	-	Condition(s) required to have Worker report completion ⁴
stop0n.Total	Struct	-	-	"	-	-	Stops if any non-zero value is exceeded when counting <i>all</i> data received
stop0n.Total.bytes	ULongLong	-	-	"	Standard	0	Stop on number of bytes received
stop0n.Total.messages	ULongLong	-	-	"	Standard	0	Stop in number of messages received
stop0n.Opcode	Struct	-	256	"	-	-	Stops if any non-zero value is exceeded when counting data received using a specific opcode
stop0n.Opcode.*	Various	-	-	"	-	-	Various ⁵
stop0n.Any	Struct	-	-	"	-	-	Stops if any non-zero value is exceeded when counting data received using any single opcode
stop0n.Any.*	Various	-	-	"	-	-	Various ⁵
stop0n.ZLM	UShort	-	-	"	0 - 256	0	Stops if a Zero Length Message is received using a given opcode. ⁶

¹"Readable" is deprecated and superfluous here. It will be removed in a future release.

²The output filename will use `strftime` substitutions to format the string if any `%` is found within it.

³Internal structure equivalent to `current.Total` and not explicitly shown.

⁴*Any* matched condition will halt the processing.

⁵Internal structure equivalent to `stop0n.Total` and not explicitly shown.

⁶Default is opcode 0; set to invalid opcode 256 if this feature is *not* desired.

Worker Properties

file_write_demux.rcc

Control Operations: Stop

Component Ports

Name	Producer	Protocol	Optional	Advanced	Usage
in	false	-	false	numberofopcodes=256	Data to be streamed to output file(s)

Worker Interfaces

There are no implementation-specific interfaces for this component.

Test and Verification

Usage (local/x86)

After building the component, the user needs to type `make tests RCC_CONTAINERS=1` in the *file_write_demux.test* directory. Various properties and data flows will be tested to try to cover as many use cases as possible.

If the user would like to execute only one test, `TESTS=test_XX` can be added to the end of the command.

Experimental: Usage (remote/ARM)

Full test environment configuration (*e.g.* NFS mounting, `OCPI_CDK_DIR`, etc.) on the remote GPP is beyond the scope of this document. The test procedures assume that both shells' current working directory is the *file_write_demux.test* directory (NFS-mounted on remote) and `ocpirun` is in the remote's current `PATH`. NFS **must** be used for the scripts to properly verify the outputs.

In the host shell, the user types `make tests IP=xx.xx.xx.xx`. A command that can be copied and then pasted into the remote shell will be displayed. Once the remote shell returns to the bash prompt, pressing "Enter" on the host will begin the verification process.

Single tests can be performed in the same manner as documented above.

Detailed Theory of Operation

Each `test_XX` subdirectory has the following files:

- `description` - a one-line description of the test
- `application.xml` - the OAS XML for the test setup
- `golden.md5` - (optional) MD5 checksums of golden/expected output
- `generate.[sh|pl|py]` - (optional) script to generate test data
- `verify.sh` - (optional) script to verify output(s)

Data is sourced with the `pattern` component or `file_read` within the OAS. If the former, the source data is encapsulated in the OAS. When the latter, a `generate.py` script generates the required data. Most OASs dump the "current" property to a file `UUT.current.dump`, which is also confirmed to match expected output.

If `generate.sh` does not exist, a default one is created that will run `generate.pl` and/or `generate.py` if they exist and are executable. This default script is removed with `make clean`.

If `verify.sh` does not exist, a default one is created that will run `md5sum` and verify all the checksums listed in `golden.md5`. This default script is also removed upon `make clean`.