



# ALTAIR

ONLY FORWARD

Art of Flows

Example Guide

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This chapter covers the following:

- [Example 1](#) (p. 4)
- [Example 2](#) (p. 7)

The examples described in *The Art Of Flows* book are available in the `$VOVDIR/training/art_of_flows` directory. *The Art Of Flows* is available in the documentation bookshelf in PDF form. This section describes how to run the examples.

To begin, please point to the new environments directory and switch to the environment EDA1:

```
% setenv VOV_ENV_DIR $VOVDIR/training/art_of_flows/environments
% ves EDA1
```

## Example 1

```
% mkdir aof_ex1  
% cd aof_ex1  
% date > Block.v
```

1. To run Example 1, create a directory and create a file called `Block.v`.

```
% mkdir aof_ex1  
% cd aof_ex1  
% date > Block.v
```

2. Start a FlowTracer project and start a GUI:

```
% vovproject create art_of_flows  
% vovproject enable art_of_flows  
% vovconsole -view graph -set All:nodes &
```

## Example 1 with Scripts

The first script is "naked", the second has more frills.

```
% $VOVDIR/training/art_of_flows/example1/script1_1.csh Block.v Block.vg  
% $VOVDIR/training/art_of_flows/example1/script1_2.csh Block.v Block.vg
```

## Example 1 with make

The first makefile is simple, the second tries to augment the information about how the job is executed by printing additional information on stdout.

```
% make -f $VOVDIR/training/art_of_flows/example1/Makefile1_1  
% make -f $VOVDIR/training/art_of_flows/example1/Makefile1_2
```

If you have Accelerator, you can also try a makefile that has hard-coded links to a specific scheduler:

```
% make -f $VOVDIR/training/art_of_flows/example1/Makefile1_3
```

## Example 1 with FlowTracer

The two flow descriptions yield exactly the same result.

```
% vovbuild -f $VOVDIR/training/art_of_flows/example1/Flow1_1.tcl  
% vovbuild -f $VOVDIR/training/art_of_flows/example1/Flow1_2.tcl
```

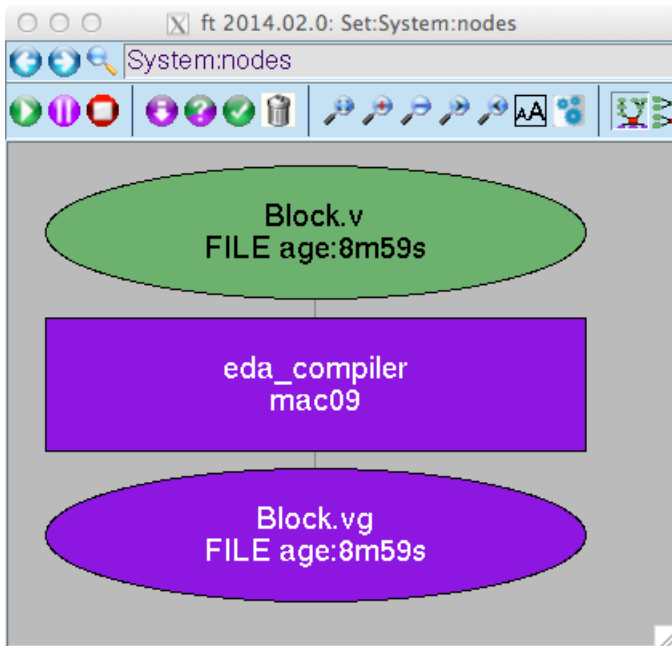


Figure 1: Flow is Built

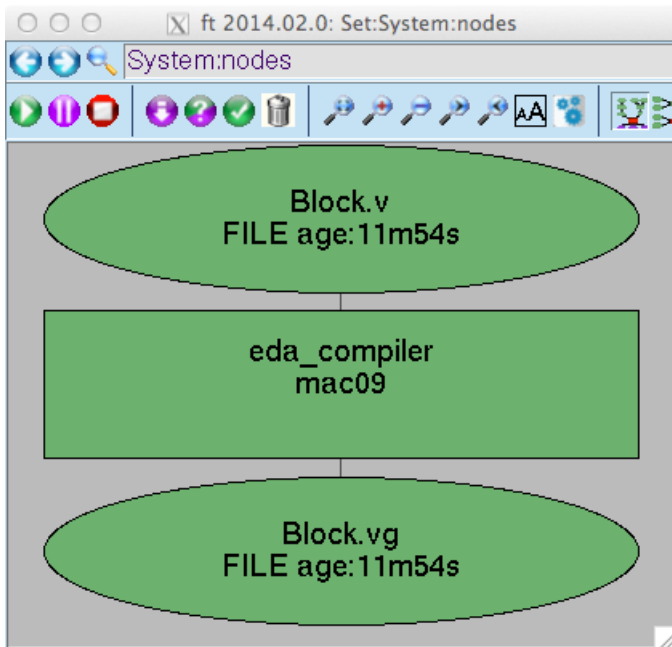


Figure 2: Flow is done

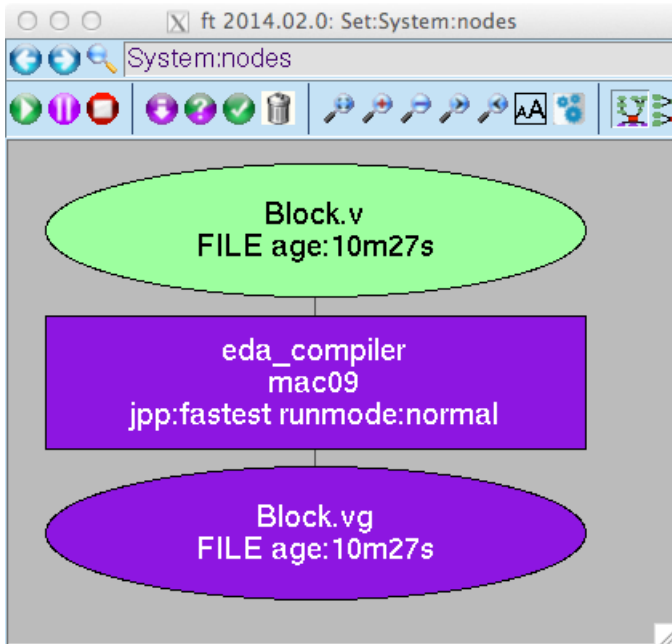


Figure 3: Flow has been changed

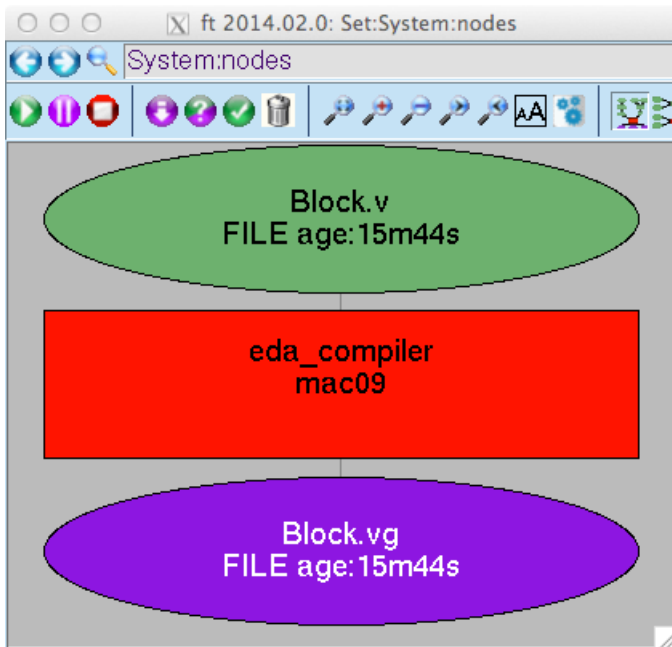


Figure 4: Flow is failing

## Example 2

To run Example 2, create a directory and initialize it with the script create\_example\_2

```
% mkdir ex2run  
% cd ex2run  
% create_example_2
```

## Example 2 with Scripts

### Example 2 with Scripts

The first script is trivial, the second has a bit of error checking:

```
% $VOVDIR/training/art_of_flows/example2/script2_1.csh  
% $VOVDIR/training/art_of_flows/example2/script2_2.csh
```

### Example 2 with make

This is an example of a recursive makefile system:

```
% make all
```

### Example 2 with FlowTracer

The Flow.tcl file creates a multi-directory flow that is easy to manage.

```
% vovbuild  
% vsr -all
```

To create a Makefile or a script from the flow, you can use vovexport:

```
% vovexport -make  
% vovexport -csh
```

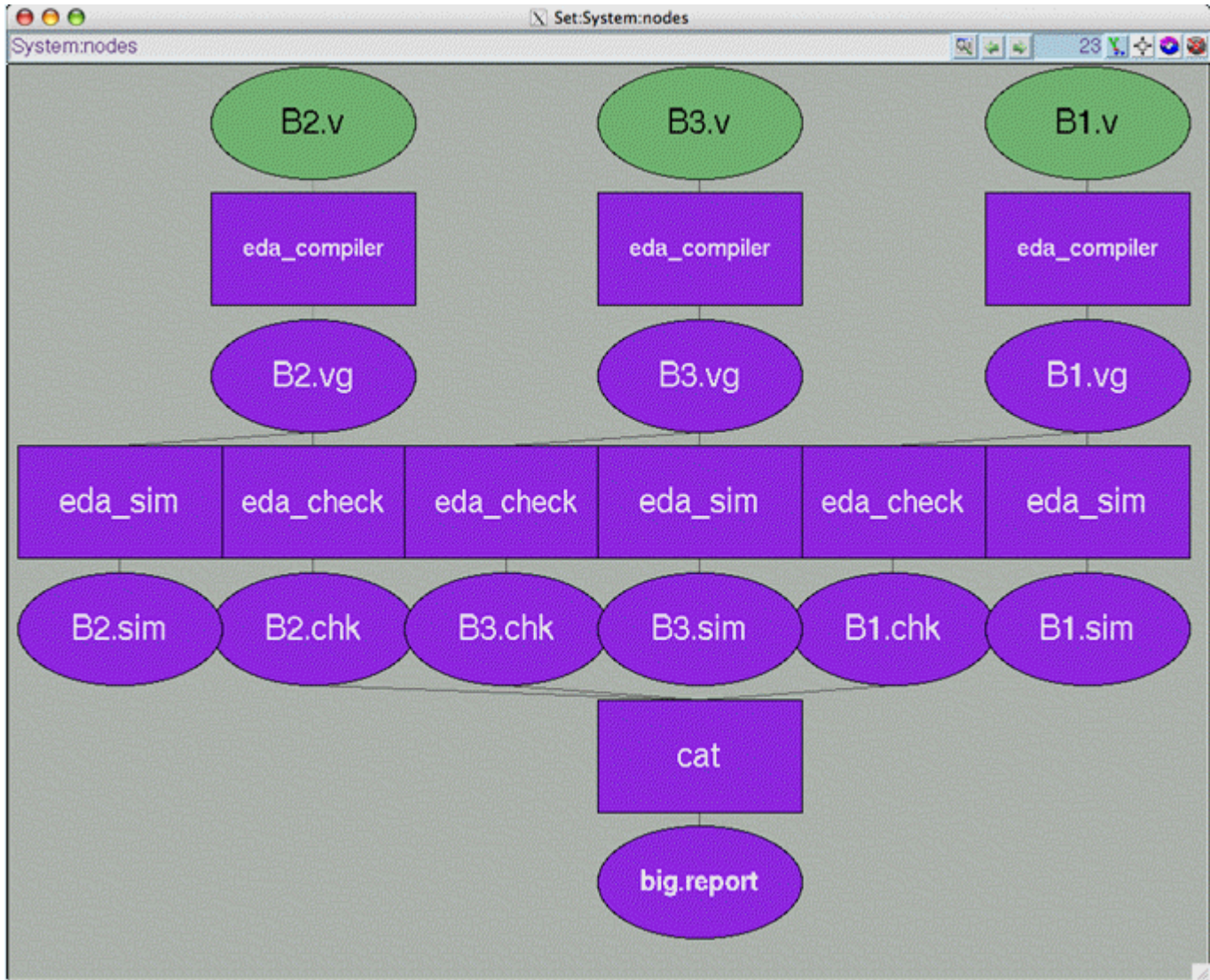


Figure 5: Flow is built



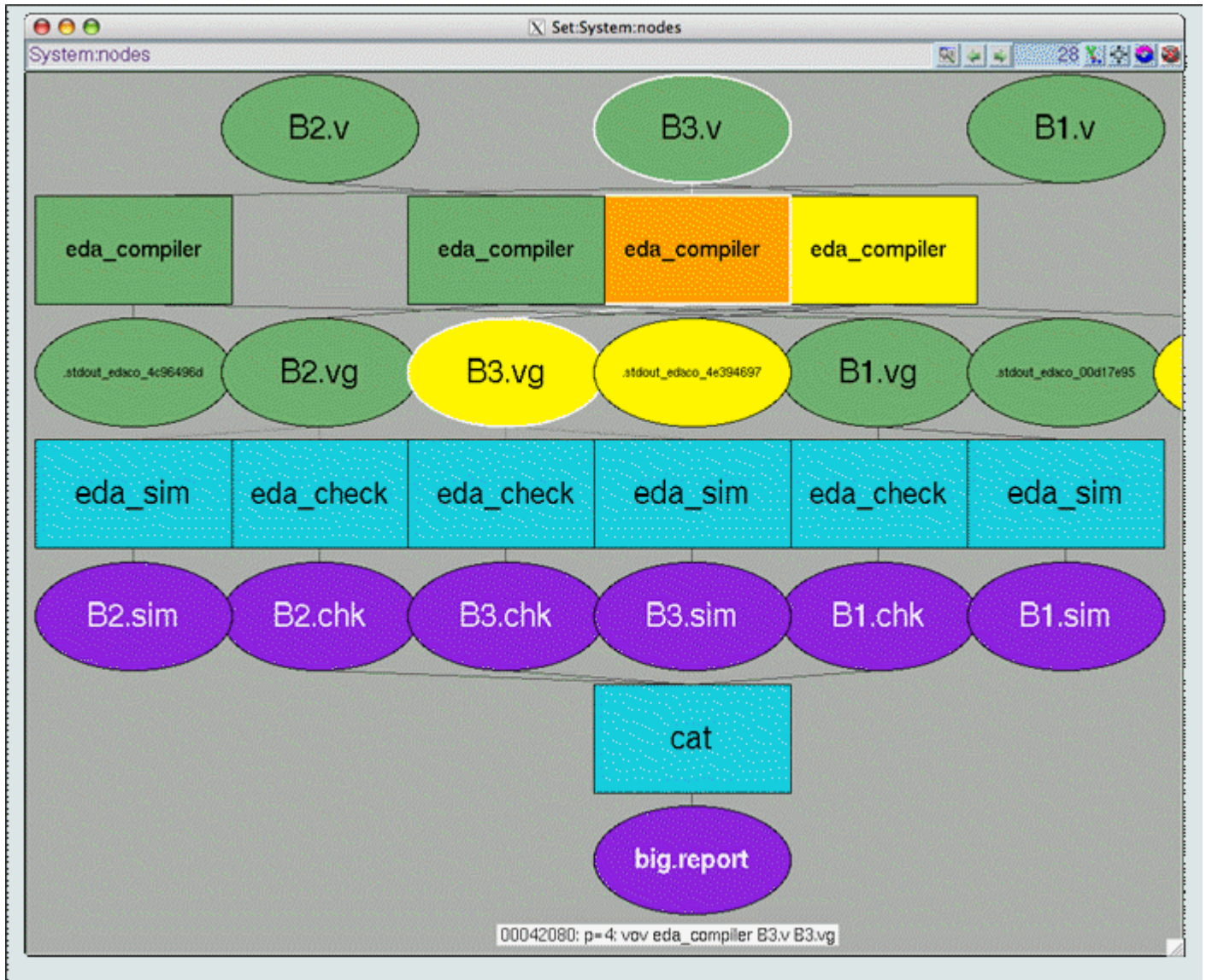


Figure 6: Flow is running

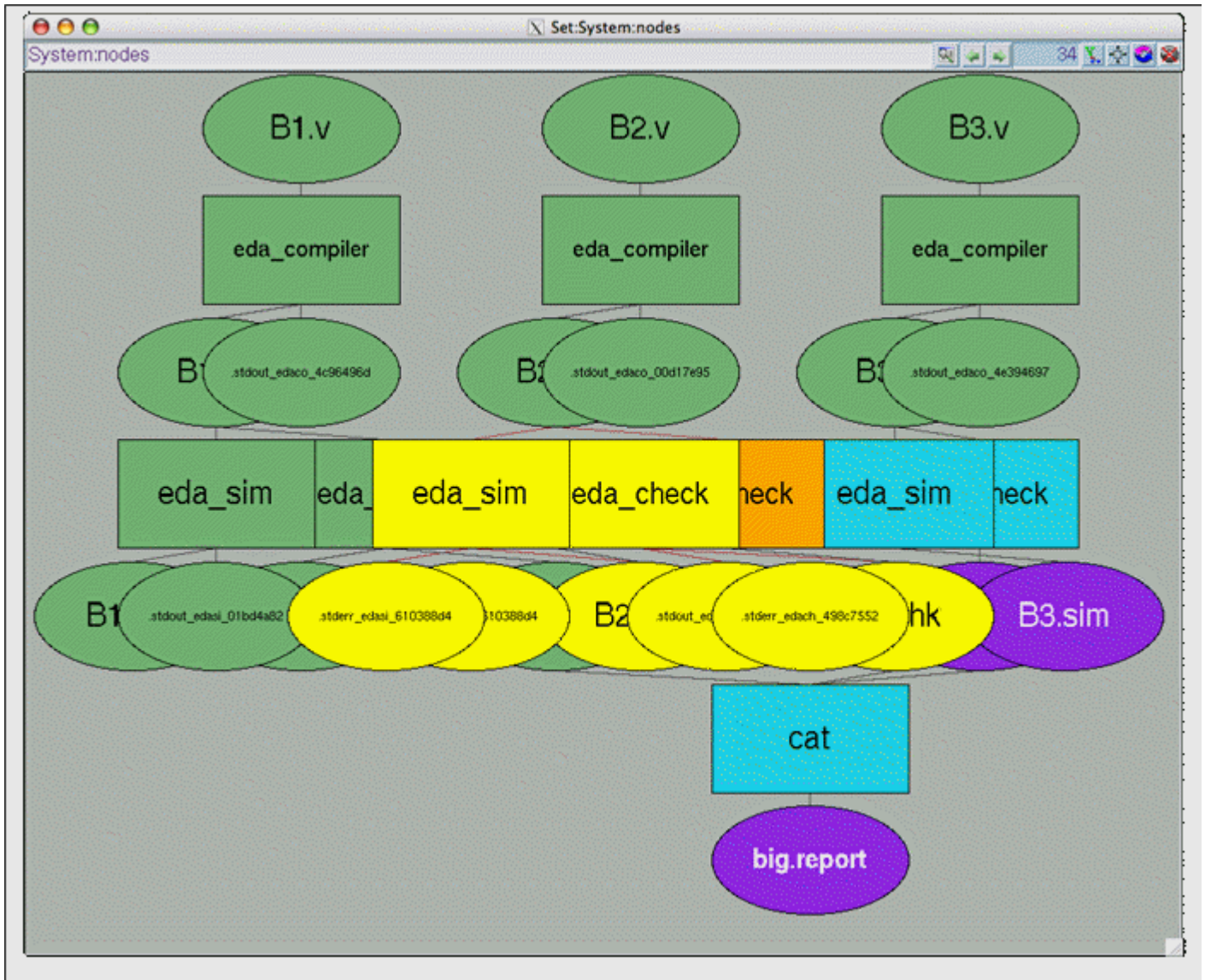


Figure 7:

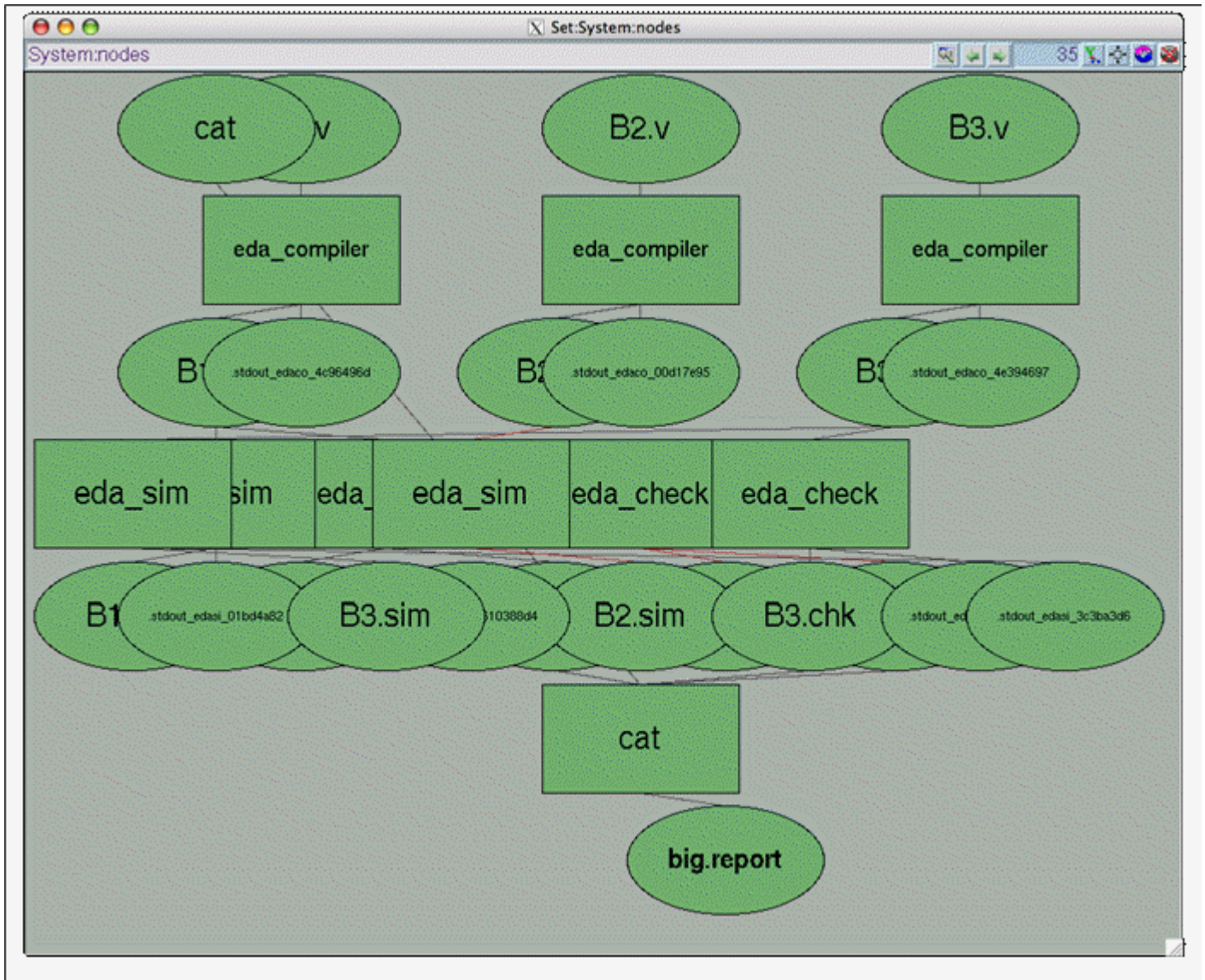


Figure 8: Flow is done

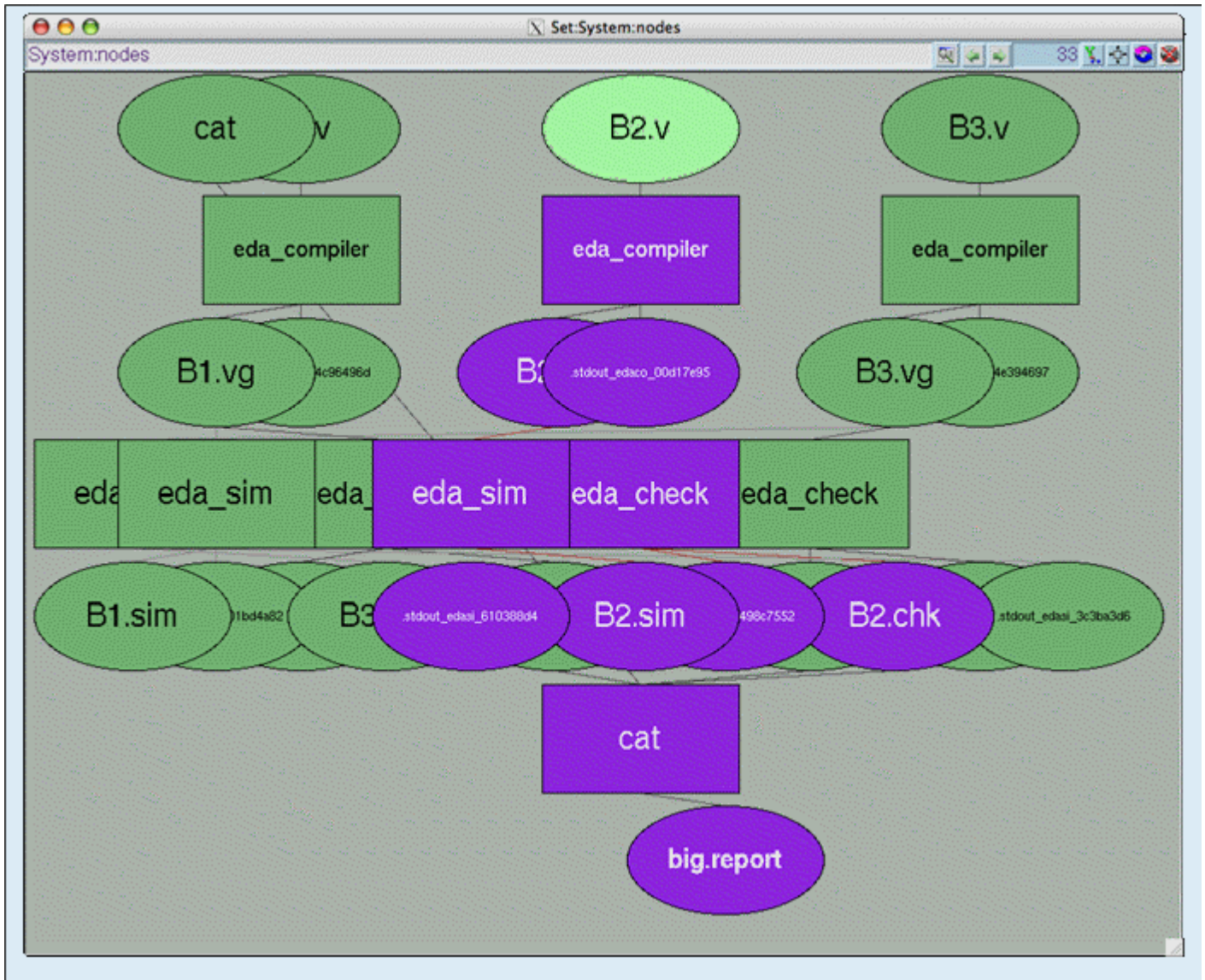


Figure 9: Flow is changed

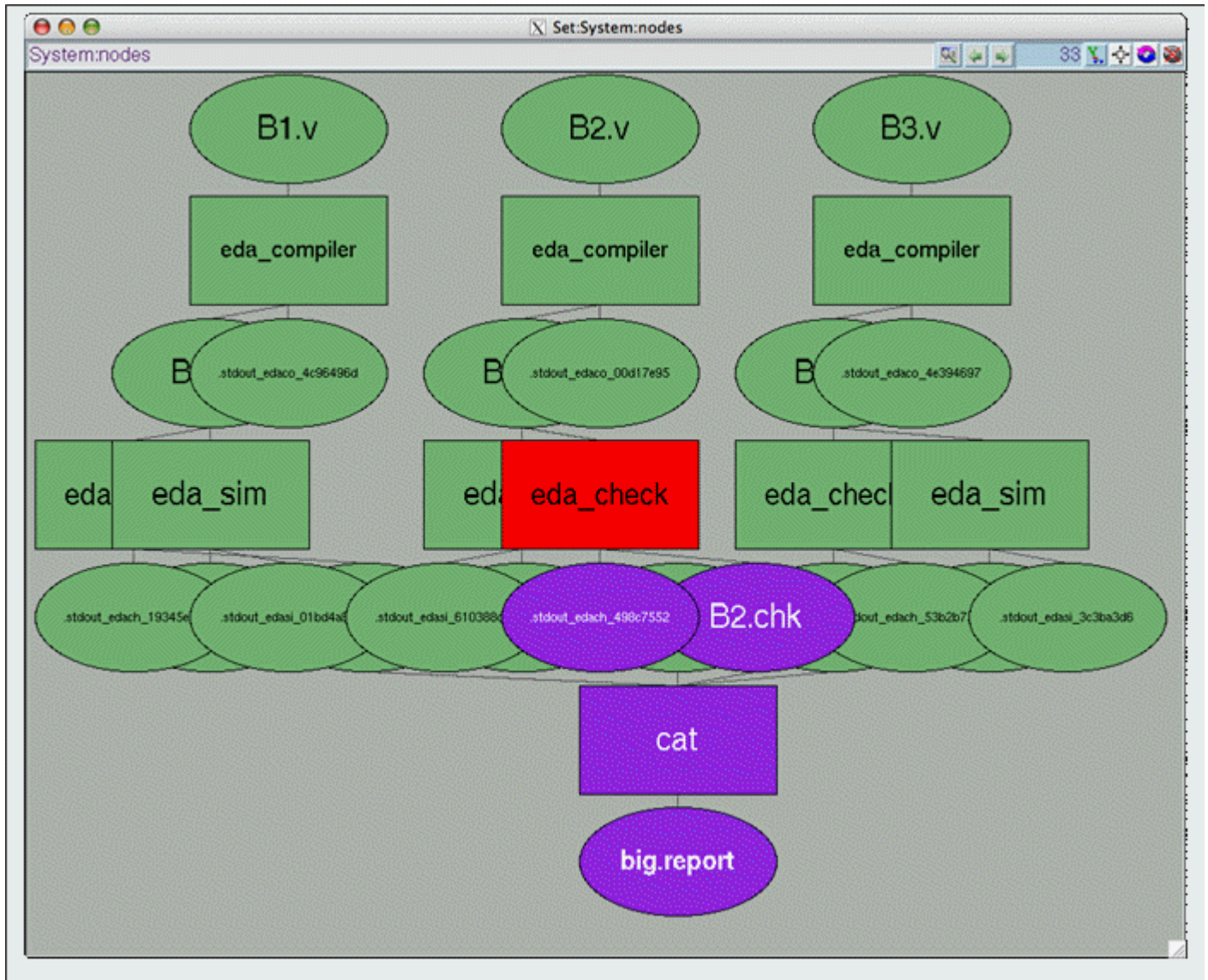


Figure 10: Flow is failing

### Example 2 with Makefile and FlowTracer

To convert the Makefile into a flow, you can use vovmake. The behavior of vovmake is controlled by vovmake.config.tcl. In this case the configuration file simply requests:

- The skipping of the targets 'all' and 'run'
- The use of the wrapper vw for most other targets
- The use of the environment EDA1

```
% vovforget -allnodes ; if necessary, to cleanup the old flow.  
% vovmake
```

You can then create a new makefile using vovexport

```
% vovexport -make
```

```
% make -f Makefile.vov clean  
% make -f Makefile.vov all
```

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