



# Why We Wrote This

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- On NCAR's bluevista we had “flint”
- Users used it to generate calling trees and diagnose Fortran programs
- “flint” is too expensive
  - Hope this can replace “flint”

# What we see PFP in browser

file:///Users/huangwei/work/WRFV3\_html/wrf.html

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Expand All  
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- [-] wrf
  - [+] wrf init
  - [+] wrf dfi
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  - [+] wrf debug
  - [-] integrate
    - [set current grid ptr](#)
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    - [+] [med pre nest initial](#)
    - [+] [alloc and configure](#)

## frame/module\_integrate.F

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### module\_integrate.F

```
1: IWRF:DRIVER_LAYER:INTEGRATION
2: !
3:
```

**module\_integrate**

```
4: MODULE module_integrate
5:
6: CONTAINS
7:
```

**integrate**

Click [HERE](#) to see the where integrate is used.

```
8: RECURSIVE SUBROUTINE integrate ( grid )
9:
10:
11:
12: USE module_domain
13: USE module_driver_constants
14: USE module_nesting
15: USE module_configure
16: USE module_timing
17: USE module_utility
18:
19: IMPLICIT NONE
20:
21: ! Input data
```

**integrate Used by:**

- [integrate](#)
- [wrf\\_run](#)

**Variables in integrate**

No.	Name	Type	Def	Use
1	a_nest_was_opened	logical	integrate	3
2	associated	None	UNKNOWN	0
3	bfrq	real	integrate	0
4	btime	real	integrate	0
5	config_flags	type	integrate	13
6	domain_clockisstopsubtime	None	UNKNOWN	0
7	domain_clockisstoptime	None	UNKNOWN	3
8	domain_get_current_time	None	UNKNOWN	1
9	domain_get_time_step	None	UNKNOWN	0
10	fid	integer	integrate	0
11	grid	type	integrate	30
12	grid_ptr	type	integrate	28
13	head_grid	None	UNKNOWN	1
14	idum1	integer	integrate	0
15	idum2	integer	integrate	0



# The Structure of PFP on Web

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- Three Panels/Columns
  - Left - Calling Tree
    - Expandable/Collapsible
    - +/- sign/box to expand/collapse
    - Subroutine/Function name to view the source code in center panel

# The Structure of PFP on Web (continued)



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- Center - Source Code
  - Detailed relative path for each file
  - High-light subroutine name (for precision navigate)
  - Modules/Subroutines/Functions/Types with hyper-link
  - “HERE” link to show more info at right:
    - Where this subroutine is used
    - Variables in this subroutine, and where they are defined (with certain option turned on at generation time)

# The Structure of PFP on Web (continued)



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## ■ Right Panel

- Where the center subroutine is referenced (called)
- Variables in this subroutine
  - Name, Type, Where it is defined, how many times it is used



# How to Run

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- Use a C-shell script (or interactive)
  - Define env. Variables (on bluefire)
    - set python\_program\_dir = /blhome/huangwei/pptpfp
    - set code\_dir = /ptmp/huangwei/tst/WRFV3
    - set html\_dir = /ptmp/huangwei/tst/WRFV3\_html
  - Run with all default
    - python \${python\_program\_dir}/pptpfp.py \  
    \${code\_dir} \  
    \${html\_dir}



# Run with Configuration

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- Add Own Configuration
  - Create a file have configuration like:  
DM\_PARALLEL  
NETCDF  
EM\_CORE = 1  
NOUNDERSCORE



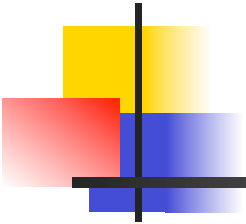
# Run with Options

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- More Options
  - **diagnose=on**
    - To diagnose whether modules are repeatedly used
  - **analyze=on**
    - To see where are variables defined, and how many times they are used
  - **exclude\_dir=nmm\_real,io\_int**
    - To exclude directories, such as data only



# Full C-shell Script for WRFV3



```
#!/bin/csh -f
set python_program_dir = /blhome/huangwei/pptpfp
set code_dir = /ptmp/huangwei/tst/WRFV3
set html_dir = /ptmp/huangwei/tst/WRFV3_html
if(! -d ${html_dir}) then
    mkdir -p ${html_dir}
endif
foreach f ( mktree.css mktree.js minus.gif plus.gif bullet.gif)
    cp ${python_program_dir}/${f} ${html_dir}/${f}
end
set bgn_date = `date +%Y%m%d:%H%M%S`
echo "bgn_date: $bgn_date" >> wrf2html.log
python ${python_program_dir}/pptpfp.py \
    ${code_dir} ${html_dir} \
    config_filename=wrf.default.configuration \
    diagnose=on analyze=on \
    exclude_dir=nmr_real,io_int \
    exclude_dir=fftpack >&! wrf2html.log
set end_date = `date +%Y%m%d:%H%M%S`
if(-f code.configuration.var) then
    cat code.configuration.var >> wrf2html.log
endif
echo "bgn_date: $bgn_date" >> wrf2html.log
echo "end_date: $end_date" >> wrf2html.log
```



# Diagnostic Messages

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Analyze: <init\_domain\_constants\_em\_ptr> in file:  
</ptmp/huangwei/tst/WRFV3/main/ndown\_em.F>

WARNING MODULE <module\_configure> already used  
in <module\_domain>

.....

WARNING Variable: name defined, but never used.

.....



# Demo and Contact

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- Browse WRFV3 on Web
  - [http://www.cisl.ucar.edu/staff/huangwei/WRFV3\\_html/wrf.html](http://www.cisl.ucar.edu/staff/huangwei/WRFV3_html/wrf.html)
- Questions/Problems/Comments
  - Email: [huangwei@ucar.edu](mailto:huangwei@ucar.edu)
  - Phone: 303-497-8924