A Public Release of WRF Portal

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WRF Portal is Released on April 11, 2008

- WRF Portal is the graphical user interface (GUI) front end for configuring and running both WRF cores: ARW and NMM, as well as configuring and running your own programs/scripts (like post).
- Simplifies the selection/localization of your domain, as well as configuring namelist.wps and namelist.input
- Employs workflow editor to create workflows and run them
- Monitors progress of workflow runs, reports any errors
- Works on either local computer or remote computers using SSH-2
- Works with either internal workflow manager or external one that supports SGE and LSF
WRF Portal Convenience Features

- Can run portal on one computer (e.g. Windows, Linux, or Mac) and execute workflows on another computer
- Can cancel (halt) runs in progress
- Eliminates need to create and maintain complicated directory trees and configuration files
- Easily search past workflows based on multiple criteria
- Remembers your preferences (e.g. automatically fills in default information for new workflows/runs)
- Portal (initial) setup is simple with the Portal Wizard
- Includes Diff tool for comparing workflows and files
Includes WRF Domain Wizard (WDW)

WDW configures and runs WRF Preprocessing System (WPS)

- select region of Earth for domain and map projection parameters
- Edit nests
- Run WPS programs (ungrib, geogrid, and metgrid)
- Visualize NetCDF output with Panoply or Google Earth
- namelist.input editor (automatically fills in many parameters for you)
- Graphical vertical (ETA level) editor
- Supports latest WRF/WPS 3 lat-lon regional and global domains
WRF Portal

- Zero installation!
  - Just click a web link and the Java webstart application just launches from your web browser
  - Portal Wizard guides you through the steps to set up the portal
  - Requires Java 1.5 or later
  - Can also download and run from command line
  - Runs on virtually all platforms
http://wrfportal.org

WRF Portal

Home

What Is WRF Portal?

WRF Portal is the graphical user interface (GUI) front end for configuring and running both WRF cores: ARW and NMM, as well as configuring and running your own programs/scripts (like post). It simplifies the selection/localization of your domain, the running and monitoring of WRF, and the visualization of your model's output. Written in Java to be portable to all platforms, WRF Portal includes WRF Domain Wizard.

What are WRF and WPS?

The Weather Research and Forecasting (WRF) Model is a mesoscale numerical weather prediction framework designed for operational forecasting and atmospheric research needs. WPS stands for WRF Preprocessing System and is used to prepare a domain (region of the Earth) for WRF.

Program Features

- Includes WRF Domain Wizard for selecting your domain on a map, defining nests, creating namelist.input, running WPS programs
- Portal Wizard walks you through the steps of configuring computers, tasks, and running WPS/WRF
- Visualize NetCDF output files with a plethora of graphing/plotting options
- Define workflows (tasks to run, associated namelist files, environment variables)
- Run workflows
Support

- Email support and links to online forums here: http://wrfportal.org/about.html
- 17 video (flash) tutorials here: http://wrfportal.org/flash-tutorial.html
http://wrfportal.org/flash-tutorial.html

WRF Portal Tutorials

These Flash tutorials demonstrate how to use WRF Portal.

1) Portal Wizard (configures WRF Portal)
2) Define a workflow
3) Run a workflow, Diagnose and Fix Errors
4) Diff tool
5) Visualize NetCDF output files (maps)
6) Download Jan 2000 test data, and run real and wrf
7) Run WRF Portal "locally" on a remote machine using X forwarding

WRF Domain Wizard Tutorials

These Flash tutorials demonstrate how to use WRF Domain Wizard.

1) Configuring WRF Domain Wizard
2) Create a new domain
3) Open a domain, create nests
4) Editing namelist.wps, namelist.input, Vertical Editor
5) Run WPS programmes after creating Lat-Lon global domain with a nest
6) Setting a Job Command (for running WPS)
7) Visualizing NetCDF output files
8) Run WRF Domain Wizard "locally" on a remote machine using X forwarding
9) Visualize NetCDF files in IDV and Google Earth
http://wrfportal.org/flash-tutorial.html
http://wrfportal.org/flash-tutorial.html
Type in the name of the computer on which WRF/WPS was installed. If it is your local desktop, type in that name.

In this tutorial, WRF/WPS has been installed on a remote computer named "hep", so I will enter that name.
Portal Tutorial (Video) - Portal Wizard

About Setting Up Computers and Workflow Managers

Enter one or more LINUX, UNIX, or Mac computers on which you will run portal tasks. Enter your computer's network name (e.g., wrf.princeton.edu) to use your local computer.

To use the External Workflow Manager to execute your model tasks (jobs), you must install it separately from wrfportal.org, and then enter the path to this program here. The External Workflow Manager requires that you select a batch queue system (job scheduler)—either SGE or LSF.

**Computer**

**External Workflow Mgr Path**

**Batch (Queue) System**

New  Delete  Help  Save

Connected to local computer: Torpedo2

Page last modified April 15, 2009

http://wrfportal.org/flash-tutorial.html
Running WRF Portal From The Web

WRF Portal is a GUI that takes you through the entire process of running WRF: creating a domain (using the built-in WRF Domain Wizard component that generates your namelist and namelist input files), creating and running workflows, monitoring the progress of your runs, drifting workflows and files. Supports WRF version 2.x and generally supports the new WRF version 3. Get the source code here.

What's New in version 0.93? - Updates to WRF Domain Wizard for WRF 3 namelist input, WPS 3 "first-then" regional and global domains, and visualizing NetCDF files in IDV and Google Earth.

Run WRF Portal using Java Web Start (recommended, no installation required)

Click here to launch WRF Portal Beta 0.93

No installation required. Just click on the link and WRF Portal will set itself up and run. You will also automatically get updates to WRF Portal as they are made available. This beta version includes support for WRF 3 and WPS 3.
Portal Wizard (sets up WRF Portal)

Step 1) Set Up Environment Vars Defaults For WRF Tasks

- **Computer:** tornado.tsl.noaa.gov
- **WRF Core:** ARW
- **WRF Root Dir:** /WRF/WRFV3
- **WPS Root Dir:** /WRF/WPSV3
- **Domain Dir:** /wrf-data/domains/Colorado-ARW
- **VTABLE Dir:** /wrf-datadomains/Colorado-ARW
- **Lungrib Input Dir:** /wrf-data/NICEP_model_data/INPUT_DATA/ANAM
- **Forecast Interval:** 3
- **Forecast Length:** 12

Run Settings:
- **Run WPS With MPI?**
- **Run WRF With MPI?**

Overwrite WRF Tasks Env Vars With Values Above

User Hints & Info
First, change any env vars (above) and save them for def_ungrib, def_metgrid, def_real, and def_wrf. Next, launch Task Manager to review these changes or further customize them.

Connected to local computer: Tornado2

Step 2) Run Task Manager
After setting up defaults for your WRF tasks, you can review and customize the tasks by pressing the "Launch Task Manager" button.

When you configure your model(s) to run, you'll need to include one or more tasks (scripts/programs) to execute. These tasks can include environment variables and associated namelist files. All of this is set up with the portal's Task Manager screen.

The portal comes standard with the tasks to run WRF. You can define your own tasks, like custom post processing, here.
Monitor Workflow Runs

![Monitor Workflow Runs](image)

The image displays a window titled "Run Monitor" with search criteria for monitoring workflow runs. The table lists run configurations, run dates, statuses, run times, and other details. The search criteria include options for running between dates, model configuration, status, and computer. The table also shows details for specific runs, including task names, job IDs, job start times, run times, and statuses.
Diff Tool compares workflows and files

USERNAME=PORTAL
NAME=WRF-EASTCOAST-RUN
MODEL_TYPE=WRF
NOTE=
DATA_ROOT_DIR=/EXPORT/JEFF/WRFPORTRAINT-RUNS
INPUT_FILES_DIR=
ACCOUNT_NAME=MAPP
RUN_STATUS=SUBMITTED
WORKFLOW_MGR=INTERNAL
FLOWRATE=-1
MODIFIED_DATE=2008-04-11 16:44:56.049
MODEL_CONFIG_NAME=WRF-EASTCOAST

RUN TASKS
DEF_UGRIB
DEF_METGRID
DEF_REAL
DEF_WRF

RUN DATES
2005-07-11 00:00:00.0

USERNAME=PORTAL
NAME=WRF-EASTCOAST-RUN1
MODEL_TYPE=WRF
NOTE=
DATA_ROOT_DIR=/EXPORT/JEFF/WRFPORTRAINT-RUNS
INPUT_FILES_DIR=
ACCOUNT_NAME=MAPP
RUN_STATUS=SUBMITTED
WORKFLOW_MGR=INTERNAL
FLOWRATE=-1
MODIFIED_DATE=2008-04-14 14:35:07.609
MODEL_CONFIG_NAME=WRF-EASTCOAST

RUN TASKS
DEF_UGRIB
DEF_METGRID
DEF_REAL
DEF_WRF

RUN DATES
2005-01-11 00:00:00.0
Visualize NetCDF output files

Google Earth

Panoply
<table>
<thead>
<tr>
<th>Software</th>
<th>Est. Users</th>
<th>Countries</th>
<th>Google Earth</th>
</tr>
</thead>
<tbody>
<tr>
<td>WRF Portal</td>
<td>314</td>
<td>47</td>
<td>open in Google Earth</td>
</tr>
<tr>
<td>WRF Domain Wizard</td>
<td>448</td>
<td>47</td>
<td>open in Google Earth</td>
</tr>
<tr>
<td>Ext. Workflow Mgr</td>
<td>27</td>
<td>9</td>
<td>open in Google Earth</td>
</tr>
</tbody>
</table>
WRF Portal User Community -2
Credits

- Software developed by Aviation Branch of ESRL's Global Systems Division (part of NOAA)
- Jeff Smith, Mark Govett, Paula McCaslin, Chris Harrop
- See our poster on Wednesday afternoon

Questions?