PALM - Debugging

PALM group

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  - errors in PALM's default code, which have not been detected so far (e.g. because some parameter combinations have never been tried so far)

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  - Compile and runtime error messages will only appear in the job protocol or on the terminal (in case of interactive runs).
  - In case of runtime errors terminal messages may give first helpful hints about where errors are located.

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- The default `.mrun.config.default` file contains an additional block with debug options. It can be used with mrun-call

```
mrun ...  -h <host_identifier> -K "parallel trace"...
```

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```
.
# The next line is just an example. Add your own line below or replace this line.
%host_identifier   myhostname  lcmy
#
# The next block contains all informations for compiling the PALM code
# This is the block for the optimized version
%fopts             -I:<replace by mpi include path>:-fpe0:-O3:-xHost:...    <hi> parallel
%lopts             -L:<replace by mpi library path>:-fpe0:-O3:-xHost:...    <hi> parallel
.
.
# This is the block for the debug version
%fopts             -C:-check:nooutput_conversion:-fpe0:-debug:...           <hi> parallel trace
%lopts             -C:-check:nooutput_conversion:-fpe0:-debug:...           <hi> parallel trace
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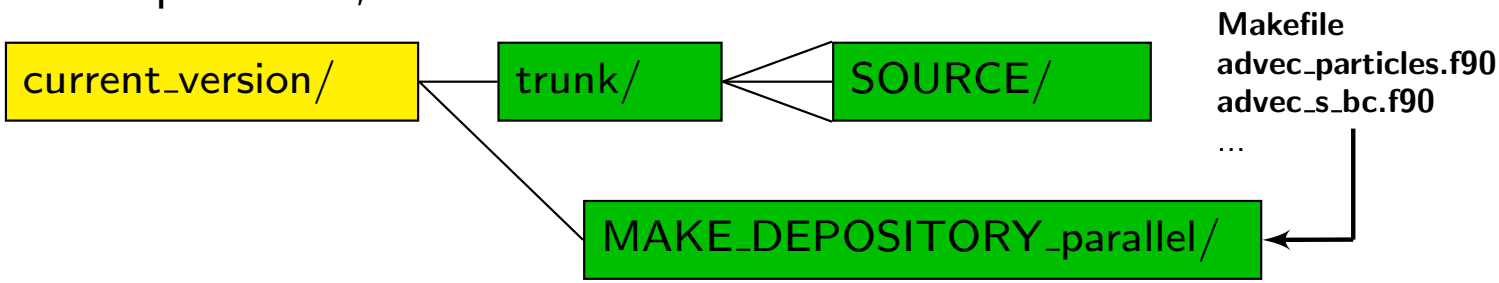

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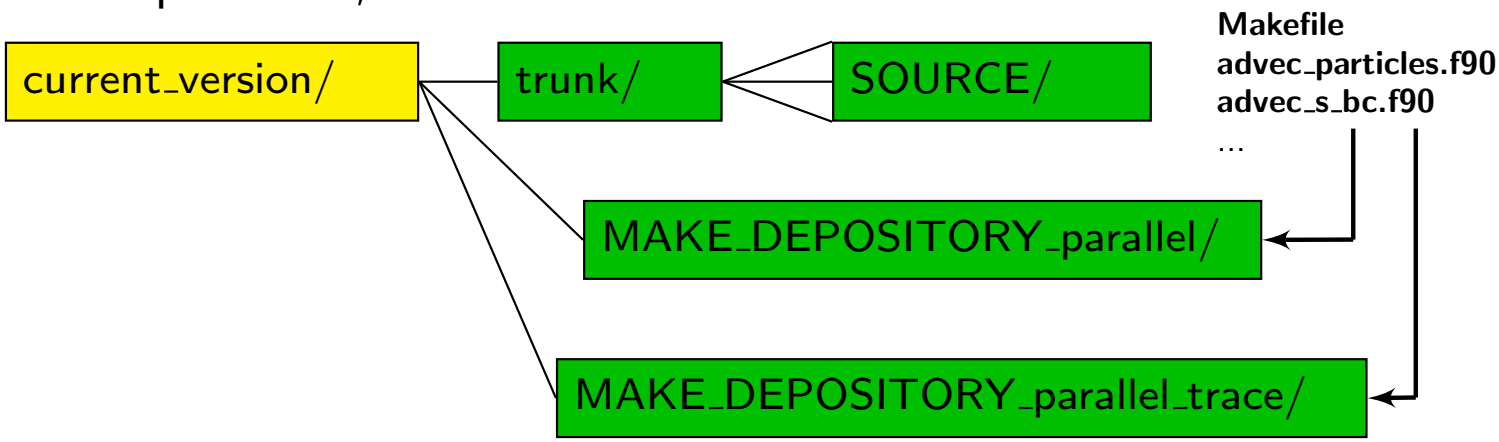

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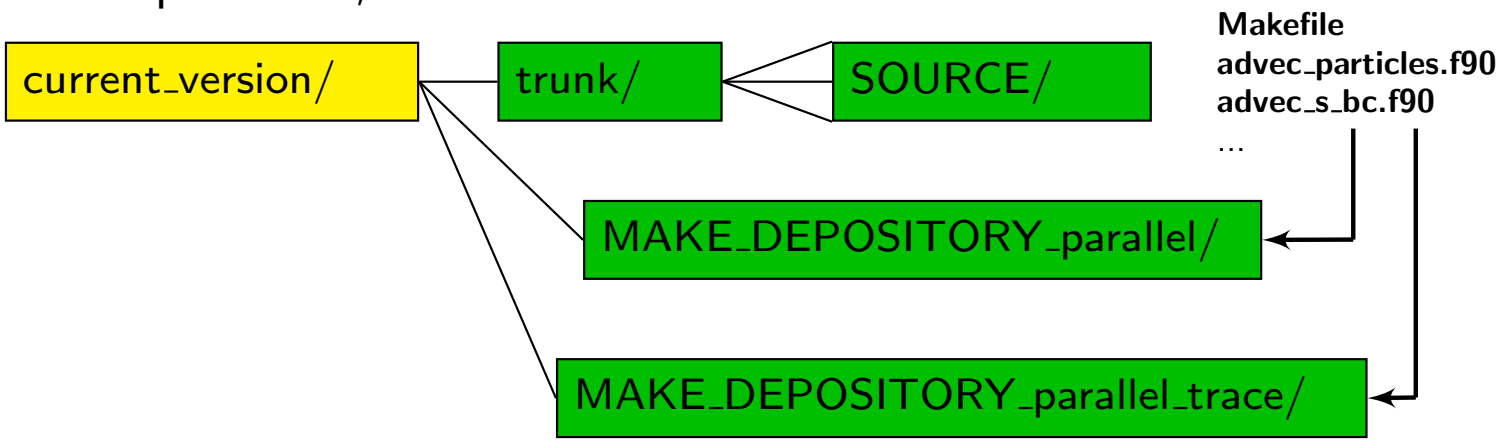

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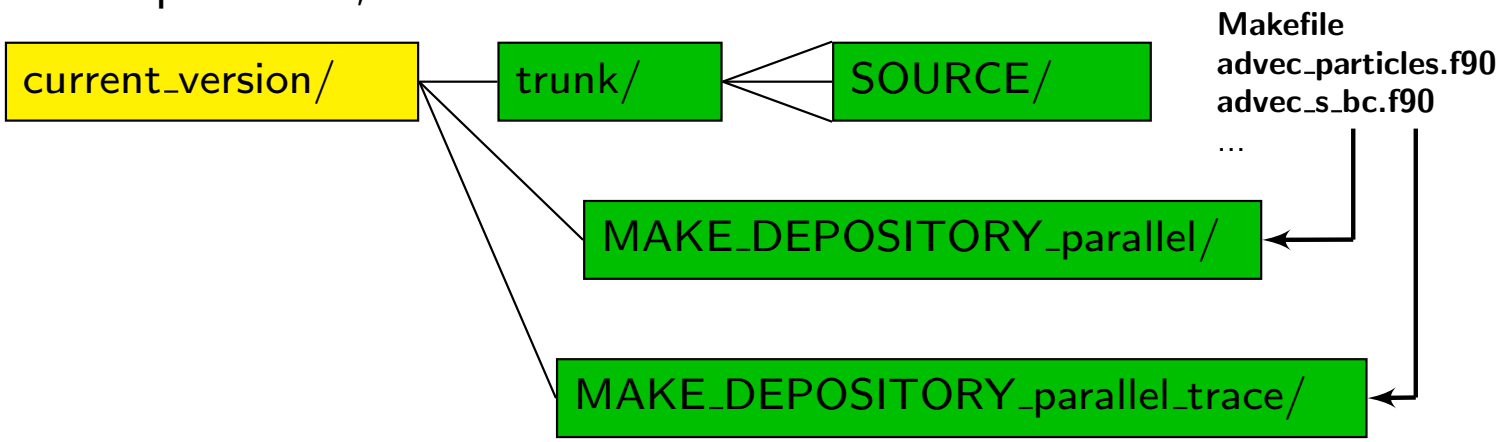

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Enabling debug options slows down the execution speed significantly!

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  - `mrun`-script will soon be adjusted for allowing to use the “Allinea DDT“ debugger.

Debugging With Print Statements (I)

- By adding appropriate print statements to the code

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WRITE(9,*) 'now i am at #1'
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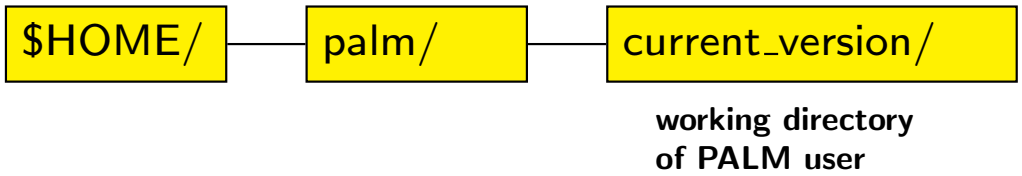

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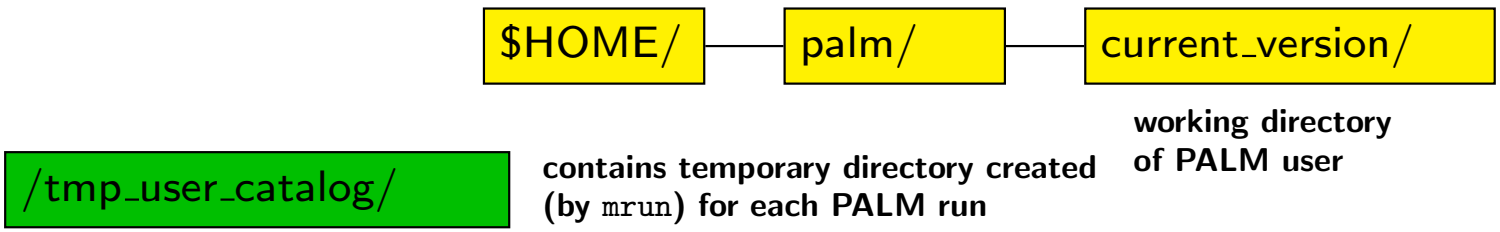

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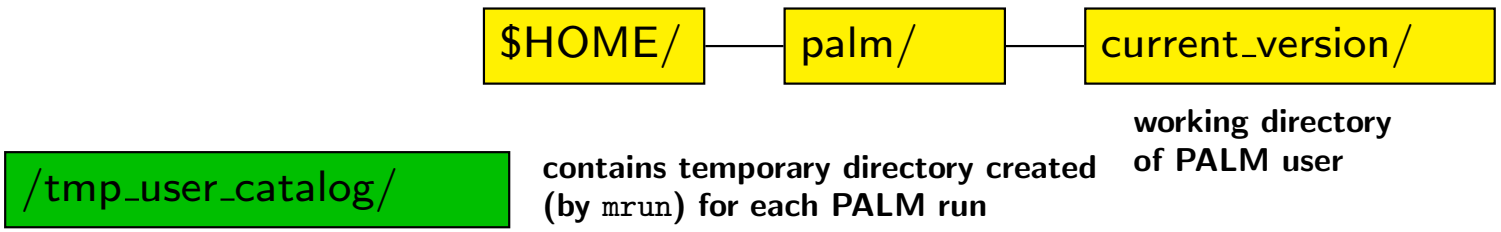
- The name of PALM's temporary working directory is generated from environment variable `tmp_user_catalog` (see `.mrun.config`), the username, and a random number:

`/<tmp_user_catalog>/<username>.<random number>`



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Very important: Every output is buffered, i.e. it will not be directly written on disc. In case of program aborts, the buffer contents are lost, so the output of the last write statements are not available. You have to prevent this problem by flushing the buffer after each print/write statement:

```
WRITE(9,*) '...'
CALL local_flush( 9 )
```