

3.7.1. Subdirectories

3.7.1.1. Tree

1. source tree就是有一个个的CMakeLists.txt构建起来的tree
; 每一个节点就是一个CMakeLists.txt
2. CMAKE_SOURCE_DIR 指的是 source tree根节点的目录
3. CMAKE_CURRENT_SOURCE_DIR : 指的是当前处理节点的全路径

CMakeLists.txt loaded by `add_subdirectory` command creates node in a **source tree**:

```
# Top-level CMakeLists.txt

cmake_minimum_required(VERSION 2.8)
project(foo NONE)

message("Top level CMakeLists.txt")

add_subdirectory(foo)
add_subdirectory(boo)
```

```
# foo/CMakeLists.txt

message("Processing foo/CMakeList.txt")
```

```
# boo/CMakeLists.txt

message("Processing boo/CMakeList.txt")

add_subdirectory(baz)
add_subdirectory(bar)
```

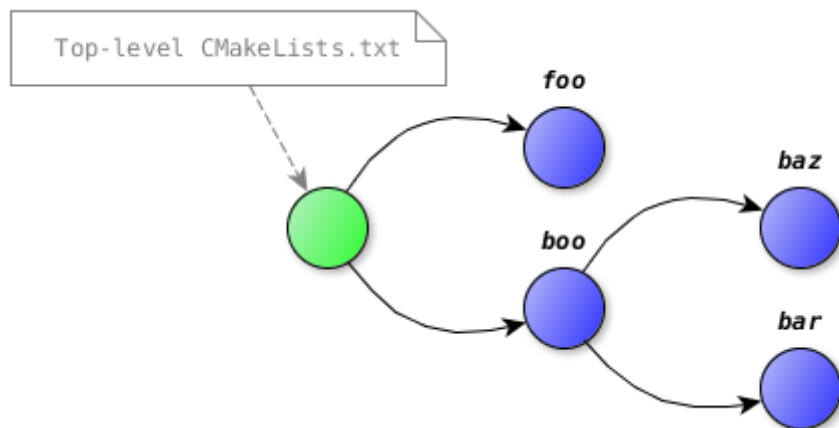
```
# boo/bar/CMakeLists.txt

message("Processing boo/bar/CMakeLists.txt")
```

```
# boo/baz/CMakeLists.txt

message("Processing boo/baz/CMakeLists.txt")
```

```
[cmake-sources]> rm -rf _builds
[cmake-sources]> cmake -Hsimple-tree -B_builds
Top level CMakeLists.txt
Processing foo/CMakeList.txt
Processing boo/CMakeList.txt
Processing boo/baz/CMakeLists.txt
Processing boo/bar/CMakeLists.txt
-- Configuring done
-- Generating done
-- Build files have been written to: /.../cmake-sources/_builds
```



3.7.1.2. Source variables

`CMAKE_CURRENT_SOURCE_DIR` variable will hold full path to currently processed node. Root of the tree is always available in `CMAKE_SOURCE_DIR` (see [-H](#)):

```
# Top-Level CMakeLists.txt

cmake_minimum_required(VERSION 2.8)
project(foo NONE)

message("Top level CMakeLists.txt")
message("CMAKE_SOURCE_DIR: ${CMAKE_SOURCE_DIR}")
message("CMAKE_CURRENT_SOURCE_DIR: ${CMAKE_CURRENT_SOURCE_DIR}")

add_subdirectory(foo)
add_subdirectory(boo)
```

```
# foo/CMakeLists.txt

message("Processing foo/CMakeList.txt")
message("CMAKE_SOURCE_DIR: ${CMAKE_SOURCE_DIR}")
message("CMAKE_CURRENT_SOURCE_DIR: ${CMAKE_CURRENT_SOURCE_DIR}")
```

```
# boo/CMakeLists.txt

message("Processing boo/CMakeList.txt")
message("CMAKE_SOURCE_DIR: ${CMAKE_SOURCE_DIR}")
message("CMAKE_CURRENT_SOURCE_DIR: ${CMAKE_CURRENT_SOURCE_DIR}")

add_subdirectory(baz)
add_subdirectory(bar)
```

```
# boo/bar/CMakeLists.txt

message("Processing boo/bar/CMakeLists.txt")
message("CMAKE_SOURCE_DIR: ${CMAKE_SOURCE_DIR}")
message("CMAKE_CURRENT_SOURCE_DIR: ${CMAKE_CURRENT_SOURCE_DIR}")
```

```
# boo/baz/CMakeLists.txt

message("Processing boo/baz/CMakeLists.txt")
message("CMAKE_SOURCE_DIR: ${CMAKE_SOURCE_DIR}")
message("CMAKE_CURRENT_SOURCE_DIR: ${CMAKE_CURRENT_SOURCE_DIR}")
```

```
[cmake-sources]> rm -rf _builds
[cmake-sources]> cmake -Hsimple-tree-source-vars -B_builds
Top level CMakeLists.txt
CMAKE_SOURCE_DIR: ../../cmake-sources/simple-tree-source-vars
CMAKE_CURRENT_SOURCE_DIR: ../../cmake-sources/simple-tree-source-vars
Processing foo/CMakeList.txt
CMAKE_SOURCE_DIR: ../../cmake-sources/simple-tree-source-vars
CMAKE_CURRENT_SOURCE_DIR: ../../cmake-sources/simple-tree-source-vars/foo
Processing boo/CMakeList.txt
CMAKE_SOURCE_DIR: ../../cmake-sources/simple-tree-source-vars
CMAKE_CURRENT_SOURCE_DIR: ../../cmake-sources/simple-tree-source-vars/boo
Processing boo/baz/CMakeLists.txt
CMAKE_SOURCE_DIR: ../../cmake-sources/simple-tree-source-vars
CMAKE_CURRENT_SOURCE_DIR: ../../cmake-sources/simple-tree-source-vars/boo/baz
Processing boo/bar/CMakeLists.txt
CMAKE_SOURCE_DIR: ../../cmake-sources/simple-tree-source-vars
CMAKE_CURRENT_SOURCE_DIR: ../../cmake-sources/simple-tree-source-vars/boo/bar
-- Configuring done
-- Generating done
-- Build files have been written to: ../../cmake-sources/_builds
```

 [CMake documentation](#)

- [CMAKE_SOURCE_DIR](#)
- [CMAKE_CURRENT_SOURCE_DIR](#)

3.7.1.3. Binary tree

Same structure will be replicated in binary tree. Information can be taken from

[CMAKE_BINARY_DIR](#) (see [-B](#)) and [CMAKE_CURRENT_BINARY_DIR](#) variables:

```
# Top-level CMakeLists.txt
```

```
cmake_minimum_required(VERSION 2.8)
project(foo NONE)

message("Top level CMakeLists.txt")
message("CMAKE_BINARY_DIR: ${CMAKE_BINARY_DIR}")
message("CMAKE_CURRENT_BINARY_DIR: ${CMAKE_CURRENT_BINARY_DIR}")

add_subdirectory(foo)
add_subdirectory(boo)
```

```
# foo/CMakeLists.txt
```

```
message("Processing foo/CMakeList.txt")
message("CMAKE_BINARY_DIR: ${CMAKE_BINARY_DIR}")
message("CMAKE_CURRENT_BINARY_DIR: ${CMAKE_CURRENT_BINARY_DIR}")
```

```
# boo/CMakeLists.txt
```

```
message("Processing boo/CMakeList.txt")
message("CMAKE_BINARY_DIR: ${CMAKE_BINARY_DIR}")
message("CMAKE_CURRENT_BINARY_DIR: ${CMAKE_CURRENT_BINARY_DIR}")

add_subdirectory(baz)
add_subdirectory(bar)
```

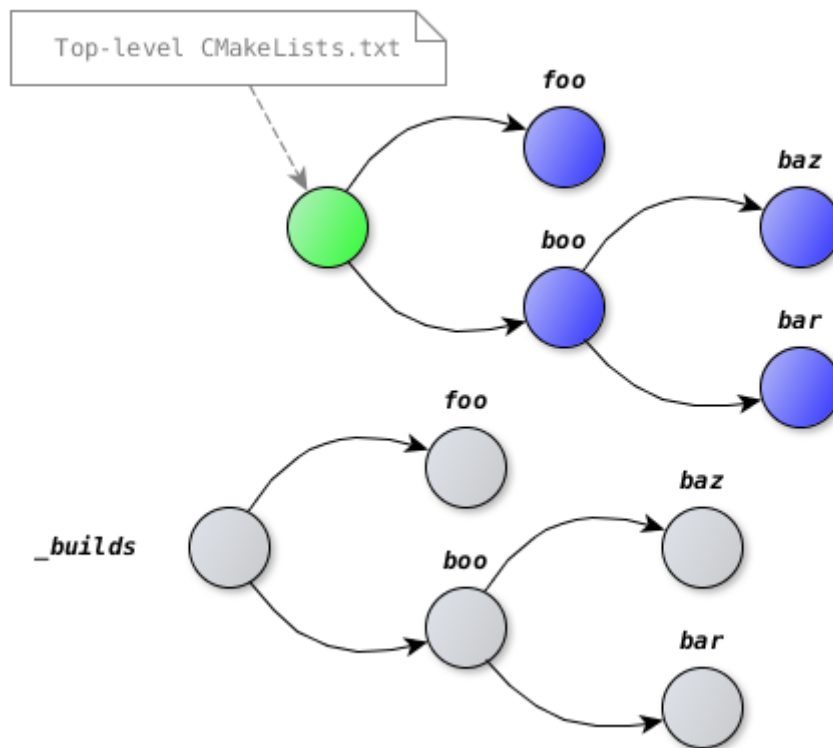
```
# boo/bar/CMakeLists.txt
```

```
message("Processing boo/bar/CMakeLists.txt")
message("CMAKE_BINARY_DIR: ${CMAKE_BINARY_DIR}")
message("CMAKE_CURRENT_BINARY_DIR: ${CMAKE_CURRENT_BINARY_DIR}")
```

```
# boo/baz/CMakeLists.txt
```

```
message("Processing boo/baz/CMakeLists.txt")
message("CMAKE_BINARY_DIR: ${CMAKE_BINARY_DIR}")
message("CMAKE_CURRENT_BINARY_DIR: ${CMAKE_CURRENT_BINARY_DIR}")
```

```
[cmake-sources]> rm -rf _builds
[cmake-sources]> cmake -Hsimple-tree-binary-vars -B_builds
Top level CMakeLists.txt
CMAKE_BINARY_DIR: ../../cmake-sources/_builds
CMAKE_CURRENT_BINARY_DIR: ../../cmake-sources/_builds
Processing foo/CMakeList.txt
CMAKE_BINARY_DIR: ../../cmake-sources/_builds
CMAKE_CURRENT_BINARY_DIR: ../../cmake-sources/_builds/foo
Processing boo/CMakeList.txt
CMAKE_BINARY_DIR: ../../cmake-sources/_builds
CMAKE_CURRENT_BINARY_DIR: ../../cmake-sources/_builds/boo
Processing boo/baz/CMakeLists.txt
CMAKE_BINARY_DIR: ../../cmake-sources/_builds
CMAKE_CURRENT_BINARY_DIR: ../../cmake-sources/_builds/boo/baz
Processing boo/bar/CMakeLists.txt
CMAKE_BINARY_DIR: ../../cmake-sources/_builds
CMAKE_CURRENT_BINARY_DIR: ../../cmake-sources/_builds/boo/bar
-- Configuring done
-- Generating done
-- Build files have been written to: ../../cmake-sources/_builds
```



! See also

- [Project variables](#)

 [CMake documentation](#)

- [CMAKE_BINARY_DIR](#)
- [CMAKE_CURRENT_BINARY_DIR](#)

3.7.1.4. Common variables

Since every `CMakeLists.txt` is a [listfile](#) so common listfile variables like `CMAKE_CURRENT_LIST_DIR` or `CMAKE_CURRENT_LIST_FILE` available. For `CMakeLists.txt` added by `add_subdirectory` there will be no difference between `CMAKE_CURRENT_LIST_DIR` and `CMAKE_CURRENT_SOURCE_DIR`, also `CMAKE_CURRENT_LIST_FILE` will be always full path to `CMakeLists.txt`. However it's not always true for other types of CMake listfiles, see next chapter for details.

CMake documentation

- [CMAKE_CURRENT_LIST_DIR](#)
- [CMAKE_CURRENT_LIST_FILE](#)
- [CMAKE_CURRENT_LIST_LINE](#)

See also

- [CMAKE_CURRENT_LIST_DIR vs CMAKE_CURRENT_SOURCE_DIR](#)