

The ARM logo is displayed in a white, lowercase, sans-serif font. The background of the slide features a dark blue, abstract pattern of circuit traces and nodes, with a grid of small white plus signs overlaid on it.

arm

Out-of-tree Secure Partition build support

Purpose

- *“Out-of-tree Secure Partition build”*
 - Vendor Secure Partition(s) maintained outside TF-M repo
 - Build TF-M with these Secure Partitions (SP) together
- Better support to vendor Secure Partition development
 - Develop and maintain vendor Secure Partition independently
 - Vendor Secure Partition can be upstreamed/published standalone
- [Patch set](#) under review

Proposal

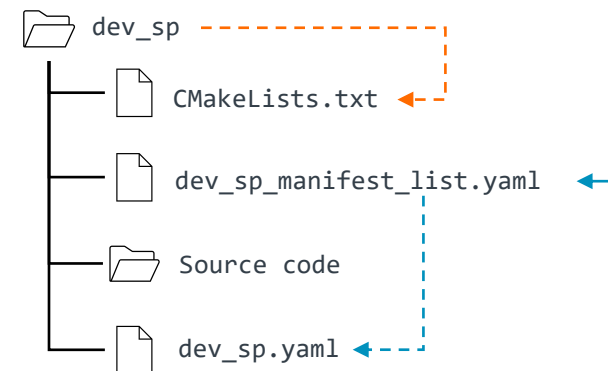
- Two new configures via command line
 - **TFM_EXTRA_MANIFEST_LIST_FILES**
 - List of absolute paths of out-of-tree SP manifest list files.
 - **TFM_EXTRA_PARTITION_PATHS**
 - List of absolute paths of the out-of-tree SP source code folder(s), containing CMakeLists.txt

```
cmake -S . -B build
```

```
.....
```

```
-DTFM_EXTRA_MANIFEST_LIST_FILES=<dev-sp-manifest-list-abs-path>
```

```
-DTFM_EXTRA_PARTITION_PATHS=<dev-sp-abs-path>
```



Implementation details

- Manifest list changes

- `manifest`

- Manifest file path be a *relative* one to manifest list file
 - Out-of-tree Secure Partition source code is “position-independent” in development environment

- `output_path`

- The relative path of generated SP files, to TF-M root directory of generated files under build folder.
 - Generated files path is independent to SP source code path in development environment.

Manifest list example

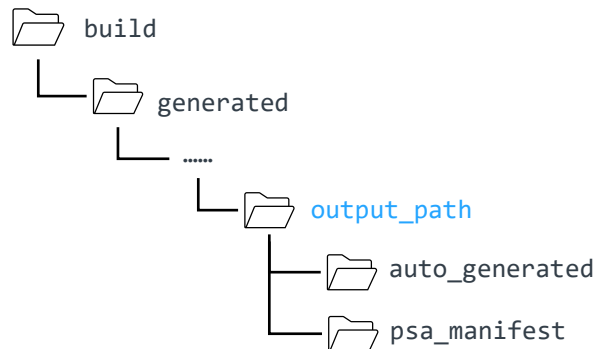
```
{
  "name": "Dev sp manifests",
  "type": "manifest_list",
  .....
  "manifest_list": [
    {
      "name": "Developer SP",
      .....
      "manifest": "dev_sp.yaml",
      "output_path": "dev_sp",
      .....
    },
    {
      # Additional manifest
      .....
    }
  ]
}
```

Implementation details (cont'd)

- Special manifest parse steps
 - Build up manifest file path
 - Manifest list file absolute path + manifest file relative path `manifest`
 - Fetch out-of-tree Secure Partition manifest file(s) then



- Build up generated files output directory
 - TF-M generated file root directory + `output_path`



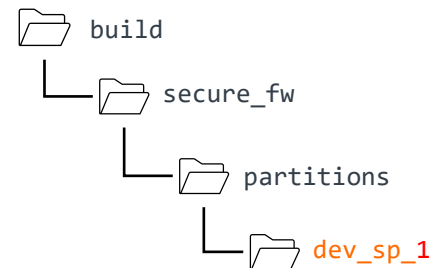
Implementation details (cont'd)

- Secure Partition build configure
 - Include each out-of-tree SP from `TFM_EXTRA_PARTITION_PATHS`
 - Eventually fulfilled by top-level `CMakeLists.txt` under SP folder(s)
 - A postfix appended to each SP build folder to distinguish different vendors
 - Different vendors may name SP with similar names: *dev*, *test*, *demo*, *example*, etc.

```
foreach(EXTRA_PARTITION IN LISTS TFM_EXTRA_PARTITION_PATHS)  
.....  
    add_subdirectory(EXTRA_PARTITION BINARY_EXTRA_PARTITION)  
.....  
endforeach()
```



Source code



Build folder

Typical out-of-tree SP folder organizations

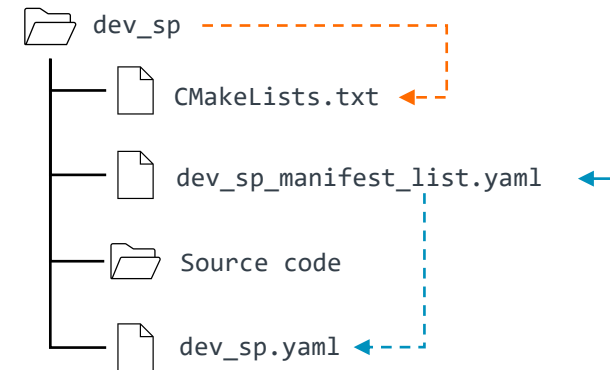
- Single out-of-tree SP

```
cmake -S . -B build
```

```
.....
```

```
-DTFM_EXTRA_MANIFEST_LIST_FILES=<dev-sp-manifest-list-abs-path>
```

```
-DTFM_EXTRA_PARTITION_PATHS=<dev-sp-abs-path>
```



Typical out-of-tree SP folder organizations

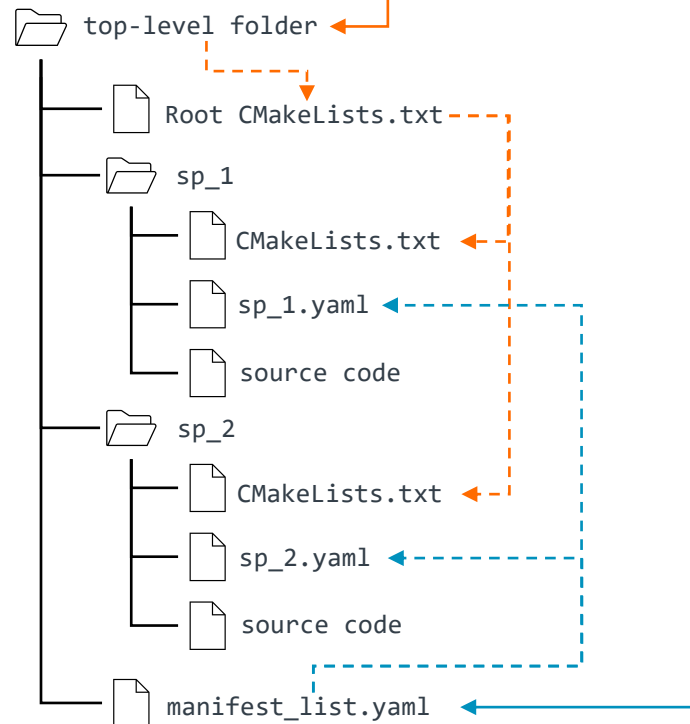
- Multiple SPs under a single folder
 - Test services as an [example](#)

```
cmake -S . -B build
```

```
.....
```

```
-DTEF_EXTRA_MANIFEST_LIST_FILES=<top-manifest-list-abs-path>
```

```
-DTEF_EXTRA_PARTITION_PATHS=<top-folder-abs-path>
```



Manifest list example

```
{  
  "name": "Dev sp manifests",  
  "type": "manifest_list",  
  .....,  
  "manifest_list": [  
    {  
      "name": "SP 1",  
      .....,  
      "manifest": "sp_1/sp_1.yaml",  
      "output_path": "sp_1",  
      .....,  
    },  
    {  
      "name": "SP 2",  
      .....,  
      "manifest": "sp_2/sp_2.yaml",  
      "output_path": "sp_2",  
      .....,  
    }  
  ]  
}
```


Typical out-of-tree SP folder organizations

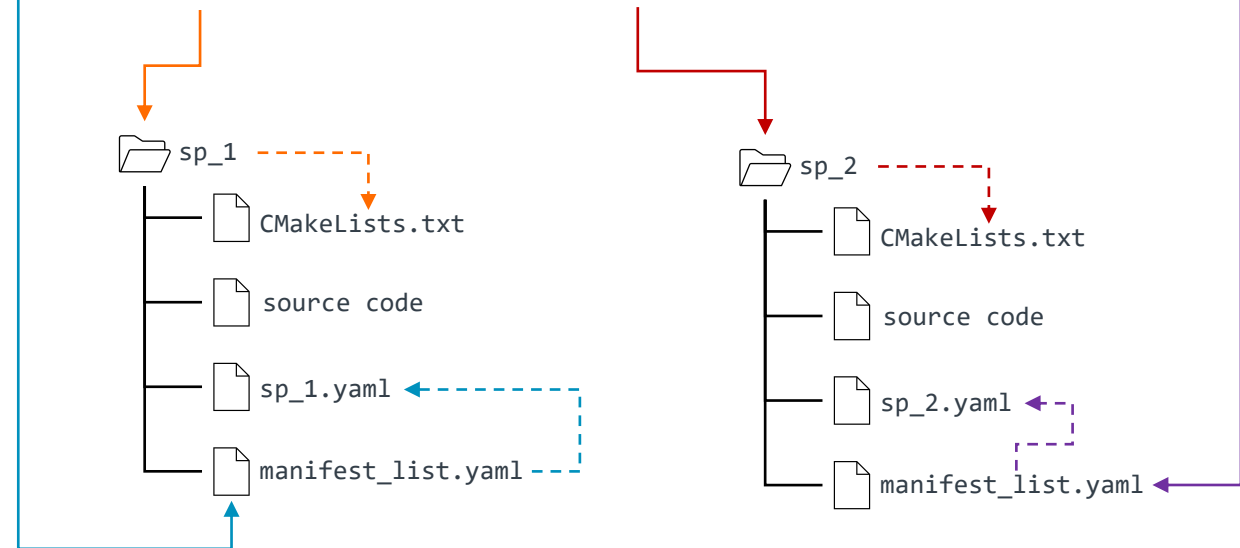
- Multiple SP folders
 - The orders of manifest list files and folders don't matter

```
cmake -S . -B build
```

```
.....
```

```
-DTFM_EXTRA_MANIFEST_LIST_FILES=<sp-1-manifest-list-abs-path>;<sp-2-manifest-list-abs-path>
```

```
-DTFM_EXTRA_PARTITION_PATHS=<sp-1-folder-abs-path>;<sp-2-folder-abs-path>
```



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Thank You

Danke

Gracias

谢谢

ありがとう

Asante

Merci

감사합니다

धन्यवाद

Kiitos

شكرًا

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