



# Configuration API for Apache HTTP Server

William A. Rowe Jr.  
[wrowe@apache.org](mailto:wrowe@apache.org)

# Configuration

register\_hooks Function (upon load)

pre\_config Hook (prior to conf processing)

{ Configuration Command Processing }

post\_config Hook (after .conf files processed)



# Module Identifier

```
AP_DECLARE_MODULE(foo) =  
{  
    STANDARD20_MODULE_STUFF,  
    create_dir_foo_config,  
    merge_dir_foo_config,  
    create_server_foo_config,  
    merge_server_foo_config,  
    foo_cmds,  
    register_foo_hooks  
};
```

# http\_config.h

- Defines `command_struct`, members of the command list array
- Offers common directive handlers (on/off, int value etc)
- Offers prototypes for command handlers
- Defines the macro wrappers for individual command list entries



# command\_struct

```
struct command_struct {  
    const char *name;  
    cmd_func func; /* custom or stock handler */  
    void *cmd_data; /* presented as cmd->info */  
    int req_override;  
    enum cmd_how args_how;  
    const char *errmsg;  
};
```

# cmd\_how – what scope?

- TAKE1, TAKE2, TAKE3  
– fixed number of args
- TAKE12 TAKE23, TAKE 13, TAKE123  
– alternative number of args
- ITERATE – invoke TAKE1 multiple times
- ITERATE2 – TAKE2, first arg is repeated



# cmd\_how – more scopes

- `NO_ARGS` – Directive is simply present
- `FLAG` – boolean value
- `TAKE_ARGV` – an `argv[]`, `argc` style list
- `RAW_ARGS` – the unprocessed string

# Directive Wrappers

- Simplifies `command_struct` element declaration
- Cleanly formatted, typesafe handler references



# Stock Functions

- `ap_set_string_slot`
- `ap_set_int_slot`
- `ap_set_string_slot_lower`
- `ap_set_flag_slot`
- `ap_set_flag_slot_char`
- `ap_set_file_slot`

# Stock Args

- `cmd_data` must be the field offset within the server or dir config structure
- Config merge must still be handled by the module author
- `ap_set_deprecated` is a no-op, warning stock handler



# Scope Options

- RSRC\_CONF - Global/VHost scope only
- ACCESS\_CONF - Per-dir/htaccess scope
- OR\_LIMIT, \_OPTIONS, \_FILEINFO, \_AUTHCFG, \_INDEXES, and \_ALL
- - Enforce specific AllowOverride (OR\_ALL for anywhere)

# More Options

## EXEC\_ON\_READ

- Invoke command handler immediately  
(Otherwise invoked after the tree is read)

## NONFATAL\_OVERRIDE, \_UNKNOWN, or \_ALL

- proceed if AllowOverride violated or out of scope



# Tour of Examples

- `mod_env` – simple per-dir example
- `mod_mime` – reusing a single function for many commands (per-dir scope)
- `mod_so` – `EXEC_ON_READ` example
- `mod_userdir` – Raw args (server scope)

# Questions?

APACHE CON  
NORTH AMERICA

