Understanding `PROCINFO` in AWK

AWK provides a special built-in associative array called PROCINFO, which contains system-related and execution-related information. This document explains its various inputs in detail, including PROCINFO["sorted_in"] for sorting array iteration.

---

1. Process Information

Key	Description
PROCINFO["pid"]	Process ID of the current AWK script.
PROCINFO["ppid"]	Parent process ID of the running AWK script.
PROCINFO["gid"]	Group ID of the process.
PROCINFO["uid"]	User ID of the process.
PROCINFO["euid"]	Effective user ID (used for permissions).
PROCINFO["egid"]	Effective group ID.

Example:

```
BEGIN {
    print "Process ID:", PROCINFO["pid"]
    print "Parent Process ID:", PROCINFO["ppid"]
    print "User ID:", PROCINFO["uid"]
    print "Group ID:", PROCINFO["gid"]
}
```

---

2. File and Environment Information

Key	Description
PROCINFO["FS"]	Field Separator in use.
PROCINFO["RS"]	Record Separator in use.
PROCINFO["ARGC"]	Number of command-line arguments.
PROCINFO["ARGV"]	Array of command-line arguments.
PROCINFO["ENVIRON"]	Array of environment variables.

Key	Description

Example:

```
BEGIN {
    print "Field Separator:", PROCINFO["FS"]
    print "Record Separator:", PROCINFO["RS"]
    print "Number of Arguments:", PROCINFO["ARGC"]
}
```

---

3. Multithreading (GNU AWK 5.0+)

Key	Description
PROCINFO["tid"]	Thread ID of the current thread.
PROCINFO["nthreads"]	Number of active threads.

**4. Sorting Arrays with **``

PROCINFO["sorted_in"] allows sorting array iteration order when using for (key in array). By default, AWK does not guarantee any specific order, but this feature provides control over it.

Sorting Modes

Mode	Description
@ind_str_asc	Sort by index (string) in ascending order.
@ind_str_desc	Sort by index (string) in descending order.
@ind_num_asc	Sort by index (numeric) in ascending order.
@ind_num_desc	Sort by index (numeric) in descending order.
@val_str_asc	Sort by value (string) in ascending order.
@val_str_desc	Sort by value (string) in descending order.
@val_num_asc	Sort by value (numeric) in ascending order.
@val_num_desc	Sort by value (numeric) in descending order.

Example: Sorting by Index in Ascending Order

```
BEGIN {
    arr["c"] = 30
    arr["a"] = 10
    arr["b"] = 50


    PROCINFO["sorted_in"] = "@ind_str_asc"


    for (key in arr) {
        print key, arr[key]
    }
}
```

Output:

a 10

b 50

c 30

Example: Sorting by Value in Descending Order

```
BEGIN {
    arr["x"] = 5
    arr["y"] = 20
    arr["z"] = 15


    PROCINFO["sorted_in"] = "@val_num_desc"


    for (key in arr) {
        print key, arr[key]
    }
}
```

Output:

y 20

z 15

x 5

---

5. Signals and Other System Information

Key	Description
PROCINFO["signal", "SIGINT"]	Checks if SIGINT (Ctrl+C) was received.
PROCINFO["tm_gmtoff"]	Timezone offset in seconds from GMT.
PROCINFO["strftime"]	Time format string used by strftime().

Example: Print Timezone Offset

```
BEGIN { print "Timezone Offset:", PROCINFO["tm_gmtoff"], "seconds" }
```

Conclusion

PROCINFO is a powerful built-in array in AWK that provides process, file, threading, and sorting information. The PROCINFO["sorted_in"] feature allows flexible control over iteration order in loops. Understanding these keys enhances AWK scripting for advanced use cases.