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Section 7: Language-Independent System Services

This clause contains functional specifications for services that give applications access to features defined elsewhere in this standard. These services allow applications written in high-level languages to

(1) execute commands using the shell language,

(2) obtain values of environment variables,

(3) perform regular expression and pattern matching,

(4) process command arguments in a standard manner,

(5) generate pathnames from a pattern,

(6) perform shell word expansions,

(7) obtain system configuration information, and

(8) set locale control information

This clause does not define interfaces, but services that shall be provided by the interfaces in a language-dependent binding. This clause is optional, in that an implementation is not required to support any language binding to these services. However, any language binding shall support all of the services described here. Implementations therefore provide support for services in this clause by supplying a language-dependent binding such as the one defined in Annex B. Such a system would specify conformance to the language-dependent binding, not to the language-independent bindings given here.

7.0.1 Language-Independent System Services Rationale. *(This subclause is not a part of P1003.2)*

Section 7 essentially is a metastandard, in that it specifies services that must be in a language-dependent binding. An implementation conforms to a specific language-dependent binding such as for the C language, in Annex B, and the language-dependent binding must conform to the specifications in this clause.

In this standard, the language-independent specifications have not yet been developed. The language-independent syntax is being created in parallel by the POSIX. 1 working group. Therefore, the C language bindings temporarily described in Annex B are actually the full interface specifications. It is the intention of the P1003.2 working group to rectify this situation in a later supplement by moving the majority of the interface specifications back into this clause, leaving Annex B with only brief descriptions of the C bindings to those services.

This clause does not attempt to include everything that would be required of a language binding. The services here are those that are necessary to make use of features defined elsewhere in the standard, but that are not normally available in every language. Clearly a language that could not open, read, and write the files manipulated by the utilities in this standard would not be very useful, but this service is normally provided by any language and therefore isn't called out here. The ability to obtain values of environment variables exported from the shell, on the other hand, is not universally available, so that service is included here.

7.1 Shell Command Interface

7.1.1 Execute Shell Command

Any language binding to Language-Independent System Services shall include a facility to execute a shell command.

The language-independent specification for this facility has not been developed. The C binding for this facility is the *system* () function described in B.3.1.

7.1.2 Pipe Communications with Programs

Any language binding to Language-Independent System Services shall include a facility to execute a shell command, and to write the standard input or read the standard output of that command via a pipe.

The language-independent specification for this facility has not been developed. The C binding for this facility is the *popen* () and *pclose* () functions described in B.3.2.

7.2 Access Environment Variables

Any language binding to Language-Independent System Services shall include a facility to obtain values of environment variables, as specified in POSIX.1 {8}.

The language-independent specification for this facility has not been developed. The C binding for this facility is the *getenv* () function described in POSIX.1 {8} 4.6.1.