**Syntax and Usage:**

*CommonJS (CJS):*

Uses module.exports to export values from a module.

Uses require() to import modules and their exports.

Designed for server-side environments like Node.js.

ES Modules (ESM):

Uses export to export values from a module.

Uses import to import modules and their exports.

Designed for both browser and server environments.

*AMD (Asynchronous Module Definition):*

Uses define() to declare a module with its dependencies and factory function.

Uses require() to import modules and their exports.

Designed for asynchronous loading in browser environments.

**Loading Behavior:**

*CommonJS (CJS):*

Loads modules synchronously, blocking the main thread.

Well-suited for server-side environments where synchronous loading is acceptable.

ES Modules (ESM):

Supports both synchronous and asynchronous loading.

In modern browsers, modules can be loaded asynchronously, improving performance.

AMD (Asynchronous Module Definition):

Specifically designed for asynchronous loading.

Suitable for browser environments where synchronous loading can negatively impact user experience.

**Environment Compatibility:**

CommonJS (CJS):

Primarily used in server-side environments, particularly Node.js.

Works well for server-side codebases where synchronous behavior is acceptable.

ES Modules (ESM):

Supported in modern browsers, Node.js, and other JavaScript environments.

Designed to provide a consistent module system for both browser and server environments.

AMD (Asynchronous Module Definition):

Designed for browser environments.

Primarily used when browser scripts need to be loaded asynchronously to prevent blocking.

**Browser Compatibility:**

CommonJS (CJS):

Not natively supported in browsers without transpilation or bundling.

ES Modules (ESM):

Natively supported in modern browsers and can be used without additional tooling.

AMD (Asynchronous Module Definition):

Requires a loader library or build tools to handle AMD module loading in browsers.

Usage in Modern JavaScript:

CommonJS (CJS):

CommonJS modules are still used in older Node.js projects or in environments that support synchronous loading.

ES Modules (ESM):

ES Modules have become the standard for organizing code in modern JavaScript applications, offering synchronous and asynchronous loading capabilities.

AMD (Asynchronous Module Definition):

AMD was popular in the past for browser scripts but has been largely replaced by ES Modules and bundlers in modern development.

In summary, CommonJS, ES Modules, and AMD are different module formats designed for various contexts and purposes. ES Modules, being the standardized and modern format, provide a consistent way to modularize code in both browser and server environments. While CommonJS and AMD have their historical significance, ES Modules have largely become the preferred choice for structuring code in contemporary JavaScript projects.