

## Glossary: Developing Back-End Apps with Node.js and Express

Welcome! This alphabetized glossary contains many of the terms in this course. This comprehensive glossary also includes additional industry-recognized terms not used in course videos. These terms are essential for you to recognize when working in the industry, participating in user groups, and in other professional certificate programs.

**Estimated reading time:** 12 minutes

Term	Definition
Access Token	A small piece of code that contains information about the user, their permissions, groups, and expirations that get passed from a server to the client.
Anonymous Function	A function that is not named. An anonymous function is often passed into another function as a parameter.
API Endpoint	The touchpoint where the API connects to the application it is communicating with.
Application Server	Transforms data into dynamic content and runs the business logic, which is the data storage and transfer rules.
Application-Level Middleware	Acts as a gatekeeper and is bound to the application. No request to the application server can go past it.
Async	Short for "asynchronous". A process that runs independently of other processes.
Authentication	The process of confirming a user's identity using credentials by validating who they claim to be. Authentication assures an application's security by guaranteeing that only those with valid credentials can access the system.
Authorization	In token-based authentication, it is the process that gets executed when a web application wants to access a protected resource. A user authenticates against an authorization server.
Axios Package	The axios package wraps promises around HTTP requests. It returns a promise object.
Built-In Middleware	Can be bound to either the entire application or to specific routers. Useful for activities such as rendering HTML pages from the server, parsing JSON input from the front end, and parsing cookies.
Callback Function	A function passed into another function as a parameter, which is then invoked inside the outer function to complete an action. Instead of blocking on asynchronous I/O operations, callback functions are used to handle results when the operations complete.
Callback Hell	Many nested callback functions.
Controller	The layer in an MVC application regulates the flow of the data. It is responsible for processing the data supplied to it by the user and sends that data to the model for manipulation or storage.
Database Server	A server dedicated to providing database services.
Dependencies	Code, usually in the form of libraries and packages, that are called from other modules and reused in a program.
Error-Handling Middleware	Can be bound to either the entire application or to specific routers. Error-handling middleware always takes four arguments: error, request, response, and the next function that it needs to be chained to. Even if you don't use the next parameter, you still define it in the method signature.
Event-Driven	Where the flow of a program is determined by particular events such as user input.
Express.js	A highly configurable web framework for building applications on Node.js.
Framework	Generates code that cannot be altered to perform common tasks. Examples include Django, Ruby on Rails, and Express.js.
HTTP Headers	Additional information about and contained in an HTTP response or request.
HTTP Request	A method called by a client and sent to a server requesting access to a resource on the server.
HTTP Response	A method called by a server and sent to a client in response to an HTTP request.
HTTP Server	A type of software-based server that understands URLs and hypertext transfer protocol.
ID Token	An artifact that proves that a user has been authenticated and contains information about authorized API routes.
Inversion of Control	When the flow of control, such as the execution of instructions, is controlled by a third party.
JSON Payload	Data that is transferred in JSON format between the client and server in the header of an HTTP method.
JWT	A JSON Web token. An internet standard for creating encrypted payload data in JSON format.
Load	Refers to the number of concurrent users, the number of transactions, and the amount of data transferred back and forth between the clients and servers.
Middleware	Includes functions that have access to the request and response objects and the next() function.
Model	The layer in an MVC application responsible for managing the data of the application. It interacts with the database and handles the data logic.
Module	Files containing related, encapsulated JavaScript code that serve a specific purpose.
Multi-Threaded	Where multiple tasks are executed simultaneously.
MVC	Short for "Model-View-Controller". It is an architectural pattern that divides an application into three components: model, view, and controller.
Node Framework	A framework that works in conjunction with Node.js. A framework is a skeleton on which an application is built for a specific environment. The framework is the fundamental structure that supports the application.
Node.js	A JavaScript runtime environment that runs on Google Chrome's V8 engine.
Non-Blocking	Failure of a given thread does not cause failure in another, and the execution of a task is not blocked until execution of another task is completed.
Npm	Stands for node package manager. It is the default package manager for the Node.js runtime environment.
Package	A directory with one or more modules bundled together.
Package.json	Contains metadata information about the project, including dependencies and scripts.
Passwordless Authentication	A type of authentication that uses public/private key pairs to encrypt and decrypt data passed between client and server without the need for a password.
Payload	The data transmitted between client and server.
Private Key	In cryptography, it is a key that is known only to a specific client used to decrypt messages. Used in conjunction with a public key.

Term	Definition
Promise	An object in JavaScript that acts as a placeholder for an asynchronous task that is yet to be completed. It is the object that is returned from an asynchronous method. When you define a promise object in your script, instead of returning a value immediately, it returns a promise. The promise has three states, which are pending, fulfilled, and rejected.
Public Key	In cryptography, it is a key that can be used by anyone to encrypt messages for a specific client. Used in conjunction with a private key.
Pyramid of Doom	Another term for "callback hell".
REST	"Representational state transfer" is a set of guidelines for creating stateless client/server interfaces using HTTP methods.
REST API	An API used for communicating between clients and servers that conforms to REST architecture principles.
Route	The code that associates an HTTP request method and a URL.
Router-Level Middleware	Bound to a router and not bound to an application. You can use specific middleware for a specific route instead of having all requests go through the same middleware. Then you bind the application routes to each router.
Runtime Environment	Behaves similarly to a mini operating system that provides the resources necessary for an application to run. It is the infrastructure that supports the execution of a codebase. It is the hardware and software environment in which an application gets executed. Node.js is an example of a backend runtime environment.
Scalability	The application's ability to dynamically handle the load as is or shrinks without it affecting the application's performance.
Server.js	A file that contains the code that handles server creation.
Session-based Authentication	A type of authentication where a user provides login credentials that are verified against stored credentials in a database on a server. A session ID is provided to the client and stored in the browser as a cookie.
Single-Threaded	Where only one command is processed at a given point of time.
Statelessness	Implies that each HTTP request happens in isolation in relation to other requests. The state of the client is not stored on the server; the state is passed to the server by the client for each request.
Template Rendering	The ability of the server to fill in dynamic content in an HTML template.
Token	Contains three parts, the header, the payload, and the signature. The header contains information about the type of token and the algorithm used to create it. The payload contains user attributes, called claims, such as permissions, groups, and expirations. The signature verifies the token's integrity, meaning that the token hasn't changed during transit.
Token-based Authentication	A type of authentication that uses access tokens, often JWTs, which get passed between server and client with the data that is passed between the two.
TypeScript	A language that builds on top of JavaScript and provides type safety which assists with the development of large-scale applications by reducing the complexity of component development in JavaScript.
View	The layer in an MVC application responsible for rendering the presentation of the data that is passed to it by the model.
Web Server	Ensures client requests are responded to, often using HTTP.
Web Service	A type of web API that communicates using HTTP requests. It is the web service in the programming interface that sends and receives requests using HTTP among web servers and the client.
xml2js	Node.js package to parse a string of XML elements into a JavaScript object.



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