

React Router v5 vs v6 vs v7 — Practical Comparison

Objective: Compare mentally and technically how routing evolved in React Router to understand why each version exists.

Aspect	v5	v6	v7 (Data Router)
Route definition	<Route component={Component} />	<Route element={<Component />} />	Route objects with loaders/actions
Matching strategy	Order-based (Switch)	Route ranking (deterministic)	Route ranking + data awareness
exact required	Yes	No	No
Nested routes	Manual composition	Native nested routes	Native + data inheritance
Data fetching	useEffect in components	useEffect/hooks	loader before render
Loading state	Manual	Manual	Built-in (deferred, suspense)
Error handling	Inside component	Inside component	errorElement per route
Redirects	useHistory / Redirect	useNavigate / Navigate	Declarative + loader logic
SSR readiness	Difficult	Improved	First-class support
Mental model	UI-driven	Route-driven UI	URL = UI + Data + State
Best use case	Legacy apps	Modern SPAs	Large apps / SSR / frameworks