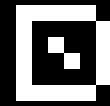
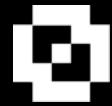


Next.js CONF25

Type-Safe URL State in Next.js with ?n=u&q=s



FRANÇOIS BEST
FREELANCE / 47NG



Op



Cal

?n=u&q=s
Type-Safe
Search Params
State Manager
For React

Making URL State Enjoyable

URL State 101

/talks?q=Next.js+Conf&year=2025

Search params

Query string

Why URL State?

Reload resilience



Not sufficient

Side effect

Other solutions

localStorage, IndexedDB

Superpowers



Teleportation

Sharing

Moving memory across devices

State sync

See the same thing

Deep Linking

Pick up where you left off



Time Travel

Bookmarks

Share forward in time

Browser History

Recall from the past

Back / Forward buttons

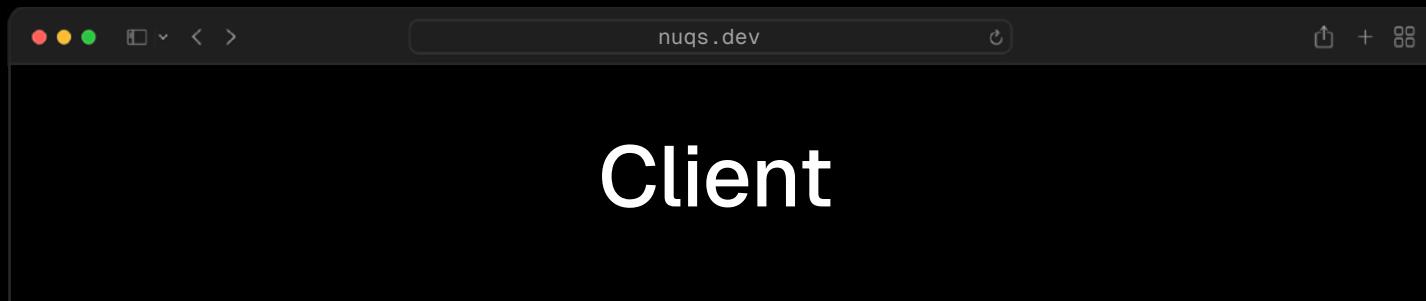
Undo / Redo

```
OCT 22 14:02:47.42 GET 200 nuqs.dev
OCT 22 14:02:47.40 GET 200 nuqs.dev
OCT 22 14:02:47.38 GET 200 nuqs.dev
OCT 22 14:02:47.36 GET 200 nuqs.dev
OCT 22 14:02:47.35 GET 200 nuqs.dev
OCT 22 14:02:47.32 GET 200 nuqs.dev
```

Server

- /
- /api/search
- /docs
- /
- /api/search
- /docs

URL

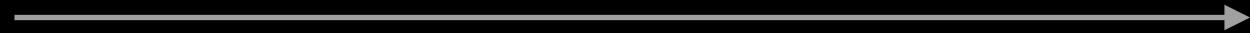


Client

Client

Server

GET /search?q=Hello



302 /login?from=/search



Drawbacks



<https://nuqs.dev/blog/beware-the-url-type-safety-iceberg>

Size Limits

Server

8 kB

Transport

2 to 4 kB

Humans

Much less

[https://example.com/path?
tableState=%7B%22pagination%22%3A%7B%22pageIndex%22%3A1%2C%22pageSize%22%3A50%7D%2C%22filters%22%3A%5B%7B%22id%22%3A%22genre%22%2C%22value%22%3A%22fantasy%22%7D%5D%2C%22orderBy%22%3A%7B%22id%22%3A%22releaseYear%22%2C%22desc%22%3Afalse%7D%7D&search=SGVsbG8sIFJIYWN0IFBhcmlzIQ](https://example.com/path?tableState=%7B%22pagination%22%3A%7B%22pageIndex%22%3A1%2C%22pageSize%22%3A50%7D%2C%22filters%22%3A%5B%7B%22id%22%3A%22genre%22%2C%22value%22%3A%22fantasy%22%7D%5D%2C%22orderBy%22%3A%7B%22id%22%3A%22releaseYear%22%2C%22desc%22%3Afalse%7D%7D&search=SGVsbG8sIFJIYWN0IFBhcmlzIQ)

[https://example.com/path?
filters=genre:fantasy&sort=releaseYear:asc&page=1&size=50
&search=The+Lord+of+the+Rings](https://example.com/path?filters=genre:fantasy&sort=releaseYear:asc&page=1&size=50&search=The+Lord+of+the+Rings)

The URL is the first UI
your users will see

URLs are immutable

Your app is not

“Cool URIs don't change”

— Sir Tim Berners-Lee

URL = Database

Schema migrations

Proxy / Middleware

Redirect

Rate Limits

Firefox, Chrome

50 ms

Safari

120 ms

Throttle & Debounce

Built-in nuqs

Time Safety

Decoupling

UI vs URL

Optimistic UI

Instant local updates

Declarative & composable

Isolated timelines, abort on navigation

Entrypoints

Validation

URL = untrusted input

Public vs Private

Search params vs hash

Interaction bypass

State machine shortcuts

SEO

Duplicate without user-selected canonical

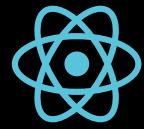
Critical vs optional search params

youtube.com/watch?v=dQw4w9WgXcQ&t=42s

```
export const metadata = {  
  alternates: {  
    canonical: '/watch?v=...' ,  
  },  
} satisfies Metadata
```

```
function UrlState_TheHardWay() {
  const searchParams = useSearchParams()
  const router = useRouter()
  const pathname = usePathname()
  const search = searchParams?.get('search') ?? ''
  const onUpdate = (value: string) => {
    const usp = new URLSearchParams(searchParams ?? '')
    usp.set('search', value)
    router.replace(`/${pathname}?${usp.toString()}`)
  }
  return (
    <input
      type="search"
      value={search}
      onChange={e => onUpdate(e.target.value)}
    />
  )
}
```

```
function UrlState_TheEasyWay() {
  const [search, setSearch] = useQueryState('search', { defaultValue: '' })
  return (
    <input
      type="search"
      value={search}
      onChange={e => setSearch(e.target.value)}
    />
  )
}
```



Demo

| | App Router | Pages Router |
|---------------|-------------------------------------|---|
| Server | <code>router.replace()</code> | <code>router.replace({ shallow: false })</code> |
| Client | <code>history.replaceState()</code> | <code>router.replace({ shallow: true })</code> |

| | App Router | Pages Router |
|---------------|-------------------------------------|---|
| Server | <code>router.replace()</code> | <code>router.replace({ shallow: false })</code> |
| Client | <code>history.replaceState()</code> | <code>router.replace({ shallow: true })</code> |

Recap

Declarative

Type-safe & time-safe behaviours

Composable

No hand-stitching necessary

Un-opinionated

Adapts to your codebase & style

? n=u & q=s

Next.js CONF25

Thank you

nuqs.dev/nextjs-conf-25



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