

url

- protocol http
- hostname IP
- port http80:80
- path
- parameter
- query
- fragment

hashhistory

hash

http://xxx.abc.com/#/xx #hashhashhash

hashchangehash

history

HTML5History APIhistorywindowonpopstate

- history.go(-1); //
- history.back(); //
- history.forward(); //
- history.pushState(data[,title][,url]); //
- history.replaceState(data[,title][,url]); //

vue3/

- Performance
Proxy
- tree sharking
- composition api
defineComponent, onMounted, onUnmounted, ref, setup react hocksmixin
- Fragment, Teleport, Suspense
ReactFragmentPortalSuspense
- Typescript
- Custom Render API
apiDOMAPI

```
function factorial(n)
{
    if (n === 1) {
        return 1;
    }

    return n * factorial(n - 1);
}
```

```
function factorialTailRecursion(n, acc)
{
    if (n === 1) {
        return acc;
    }

    return factorialTailRecursion(n - 1, acc * n);
}
```

React

React(SyntheticEvent)

1.

null

1.1

```
function onClick(event) {
    console.log(event); // => nullified object.
    console.log(event.type); // => "click"
    const eventType = event.type; // => "click"

    setTimeout(function() {
        console.log(event.type); // => null
        console.log(eventType); // => "click"
    }, 0);
}
```

1.2 e.persist()

e.persist()

2.

2.1 e.stopPropagation

documentdocumentwindow

2.2 e.nativeEvent.stopImmediatePropagation

document

- document
-
- document
- document

windowdocument

px rem em vh vw

pxpx

emfont-size

1em2em

remcss3remHTMLfont-size

HTML16px

emremremhtmlm

1font-sizeem

2rem .

vwvhvmaxvmin

vwviewport1/100

200px1vw2px200px/100

vhviewport

vminvmax

LRU

LRULRU

keep-alive

keep-aliveVue.jsDOM

includeexclude

keep-alive

keep-alivekeep-alive

createddestroyed

createdcachevnode

```
created () {  
  /* */  
  this.cache = Object.create(null)  
  // vnode  
  this.keys = []  
},
```

destroyedcache

```
/* destroyedcache */  
destroyed () {  
  for (const key in this.cache) {  
    pruneCacheEntry(this.cache, key, this.keys)  
  }  
},
```

render

```

render () {
  const vnode: VNode = getFirstComponentChild(this.$slots.default)
  const componentOptions: ?VNodeComponentOptions = vnode &&
vnode.componentOptions
  if (componentOptions) {
    // check pattern
    const name: ?string = getComponentName(componentOptions)
    if (name && (
      (this.include && !matches(this.include, name)) ||
      (this.exclude && matches(this.exclude, name))
    )) {
      return vnode
    }

    const { cache, keys } = this
    const key: ?string = vnode.key == null
      // same constructor may get registered as different local components
      // so cid alone is not enough (#3269)
      ? componentOptions.Ctor.cid + (componentOptions.tag ?
`:::${componentOptions.tag}` : '')
      : vnode.key
    if (cache[key]) {
      vnode.componentInstance = cache[key].componentInstance
      // make current key freshest
      remove(keys, key)
      keys.push(key)
    } else {
      cache[key] = vnode
      keys.push(key)
      // prune oldest entry
      if (this.max && keys.length > parseInt(this.max)) {
        pruneCacheEntry(cache, keys[0], keys, this._vnode)
      }
    }

    vnode.data.keepAlive = true
  }
  return vnode
}

```

watch

watchincludeexcludecache

```

watch: {
  /* includeexcludecache */
  include (val: string | RegExp) {
    pruneCache(this.cache, this._vnode, name => matches(val, name))
  },
  exclude (val: string | RegExp) {
    pruneCache(this.cache, this._vnode, name => !matches(val, name))
  }
},

```

JSBridge

// WebViewJavascriptBridgejavascriptnative

This lib will inject a WebViewJavascriptBridge Object to window object. You can listen to WebViewJavascriptBridgeReady event to ensure window.WebViewJavascriptBridge is exist, as the blow code shows:

```

if (window.WebViewJavascriptBridge) {
  //do your work here
} else {
  document.addEventListener(
    'WebViewJavascriptBridgeReady'
    , function() {
      //do your work here
    },
    false
  );
}

```

Or put all JsBridge function call into window.WVJBCallbacks array if window.WebViewJavascriptBridge is undefined, this taks queue will be flushed when WebViewJavascriptBridgeReady event triggered.

Copy and paste setupWebViewJavascriptBridge into your JS:

```

function setupWebViewJavascriptBridge(callback) {
  if (window.WebViewJavascriptBridge) {
    return callback(WebViewJavascriptBridge);
  }
  if (window.WVJBCallbacks) {
    return window.WVJBCallbacks.push(callback);
  }
  window.WVJBCallbacks = [callback];
}

```

Call setupWebViewJavascriptBridge and then use the bridge to register handlers or call Java handlers:

```

setupWebViewJavascriptBridge(function(bridge) {
  bridge.registerHandler('JS Echo', function(data, responseCallback) {
    console.log("JS Echo called with:", data);
    responseCallback(data);
  });
  bridge.callHandler('ObjC Echo', {'key':'value'}, function(responseData) {
    console.log("JS received response:", responseData);
  });
});

```

It same with <https://github.com/marcuswestin/WebViewJavascriptBridge>, that would be easier for you to define same behavior in different platform between Android and iOS. Meanwhile, writing concise code.

js

```

/*js*/
function setupWebViewJavascriptBridge(callback) {
  // Android
  if (window.WebViewJavascriptBridge) {
    callback(WebViewJavascriptBridge)
  } else {
    document.addEventListener(
      'WebViewJavascriptBridgeReady',
      function() {
        callback(WebViewJavascriptBridge)
      },
      false
    );
  }
  //iOS
  if (window.WebViewJavascriptBridge) {
    return callback(WebViewJavascriptBridge);
  } if (window.WVJBCallbacks) {
    return window.WVJBCallbacks.push(callback);
  }

  window.WVJBCallbacks = [callback];
  var WVJBIframe = document.createElement('iframe');
  WVJBIframe.style.display = 'none';
  WVJBIframe.src = 'wjbscheme://__BRIDGE_LOADED__';
  document.documentElement.appendChild(WVJBIframe);
  setTimeout(function() {
    document.documentElement.removeChild(WVJBIframe)
  }, 0);
}

```

js

setupWebViewJavascriptBridge js

```
//function js
setupWebViewJavascriptBridge(function(bridge) {
  //
  //1 buttonjs flag
  //2 data js
  //3 responseCallback js
  bridge.registerHandler("buttonjs", function(data, responseCallback) {
    document.getElementById("show").innerHTML = "buuton js" + data;
    responseCallback("button js callback");
  });
});
```

js

```
setupWebViewJavascriptBridge(function(bridge) {
  document.getElementById('enter3').onclick = function (e) {
    var data = "good hello"
    //1 pay flag
    //2
    //3
    bridge.callHandler('getBlogNameFromObjC', data, function(resp) {
      document.getElementById("show").innerHTML = "payInterface" + resp;
    });
  });
});
```

scriptDOM

htmlDOMscriptDOMjsDOM

1. scripthtmlDOM

2.

scriptdefer

```
<script type="text/javascript" defer src="1.js"></script>
```

html

3.

```
<script type="text/javascript" async src="1.js"></script>
<script type="text/javascript" async src="2.js"></script>
```

deferscript21onload DOMContentLoaded

deferasync

babel

- babel-corebabelbabelAPIbabel.transformwebpackbabel-loader API
- babylonjs
- babel-traverseASTplugin
- babel-generatorAST

1babelparsingtransforminggeneratingES6ES5babel

- ES6
- babylonAST
- pluginbabel-traverseAST,AST
- babel-generatorASTES5

ES6 == babylon == AST
 == pluginbabel-traverseAST == AST
 == babel-generatorASTES5

babelES6ES5APIProxySetbabelpolyfill

git rebase git merge

rebase commit ,

merge commit commit

IntersectionObserver

IntersectionObserver(Intersection Observer API)(viewport)(viewport)(root)

API

```
var io = new IntersectionObserver(callback, options)

io.observe(document.querySelector('img')) // DOM
io.unobserve(element) // element
io.disconnect() //
```

options

- root
- threshold

[0]

```
const options = {
  root: null,
  threshold: [0, 0.5, 1] // 00.51img0%50%100%
}
var io = new IntersectionObserver(callback, options)
io.observe(document.querySelector('img'))
```

- rootMargin

css10px 10px 30px 20px top right bottom left

callback

callback

```
callback: (entries: IntersectionObserverEntry[]) => void;
```

IntersectionObserverEntry

IntersectionObserverEntry

- boundingClientRect
- intersectionRatio intersectionRect/boundingClientRect 0
- intersectionRect
- isIntersecting Boolean true
- rootBounds
- target
- time IntersectionObserver

```
let io;

function callback(entries) {
  entries.forEach((item) => { // entries
    if(item.isIntersecting) { //
      item.target.src = item.target.dataset.src // src
      io.unobserve(item.target) // callback
    }
  })
}

io = new IntersectionObserver(callback)

let ings = document.querySelectorAll('[data-src]') // url data-src src src

imgs.forEach((item) => { // io.observeDOM forEach
  io.observe(item)
})
```

- google

-
-
-

Reverse Proxyinternetinternet

:

- webWeb
-

, , ,

, ,

Chrome

Chrome1Browser1GPUNetWork

-
- HTMLCSSJavaScriptV8ChromeTa
- GPUChromeGPUGPU3DCSSChromeUIGPUGPUChromeGPU
-
-

E2E

E2EEnd To End

E2E

nightwatch	assert Chai Expect		selenium	<http://nightwatchjs.org/>	

cypress	ChaiChai-jQuery		Chrome	<https://www.cypress.io/>	
testcafe			selenium	<https://devexpress.github.io/testcafe/>	
katalon	TDD/BDD			<https://www.katalon.com/katalon-studio/>	

REST

RESTURLHTTP

URI

BAD

- /getProducts
- /listOrders
- /retrieveClientByOrder?orderId=1

GOOD

- GET /products : will return the list of all products
- POST /products : will add a product to the collection
- GET /products/4 : will retrieve product #4
- PATCH/PUT /products/4 : will update product #4

PromiseGeneratorAsync

Promise

Promisepending()resolved()rejected()

- Promise
- Promise
- Pending
- Promise Promise Promise

Generator

Generator ES6Generator
Iterator

Generator yield

yieldundefined

nextyield

```
function * foo(x) {

    var y = 2 * (yield (x + 1));

    var z = yield (y / 3);

    return (x + y + z);

}

var b = foo(5);

b.next() // { value:6, done:false }

b.next(12) // { value:8, done:false }

b.next(13) // { value:42, done:true }
```

Async()

Async Generator

async *

await yield

async/await Generator

```
async function fetchUser() {

    const user = await ajax()

    console.log(user)

}
```

- [async/await](#)

webpack hash chunkhash contenthash

Webpackhashhash, chunkhash, contenthash

hash

hash

hashhash

hashhashhashchunkhash

chunkhash

chunkhash(Entry)chunkhashchunkhashhashhash

csscssjshashcsscsshash

contenthash

contenthash

contenthashhashcontenthashcsscss

ABBAAAA

devicePixelRatio

CSS

vue

- .capture
- .passive

```
<!-- () -->
<!-- `onScroll` -->
<!-- `event.preventDefault()` -->
<div v-on:scroll.passive="onScroll">...</div>
```

- .self

v-model

v-model <input><textarea> <select>

v-model

v-model property

- text textarea value property input
- checkbox radio checked property change
- select value property change

```
<input v-model="msg">

//

<input v-bind:value="msg" @input="msg=$event.target.value">
```

vm.\$isServer

Vue

vm.\$attrs

prop () attribute (class style) prop (class style) v-bind="\$attrs"

vm.\$listeners

(.native) v-on v-on="\$listeners" ---

WeakSet

, WeakSet

Set :

- SetWeakSet
- WeakSet WeakSet WeakSet WeakSet

WeakMap

/

Map :

- WeakMap "" WeakMap key
- WeakMap key (key)key key Map

react-router

react-router history

```
//
import { withRouter } from "react-router-dom";

// EggRid
export default withRouter(EggRid);
//this.props.history
```

history

- history.length -
- history.location - location
- history.action -

history.listen

```
const unlisten = history.listen((location, action) => {
  console.log(
    `The current URL is ${location.pathname}${location.search}${location.hash}`
  );
  console.log(`The last navigation action was ${action}`);
});

//
unlisten();
```

location window.location

- location.pathname - The path of the URL
- location.search - The URL query string
- location.hash - The URL hash fragment

Location

- location.state - locationURL (createBrowserHistorycreateMemoryHistory)
- location.key - loaction (createBrowserHistorycreateMemoryHistory)

history

- history.push(path, [state])
- history.replace(path, [state])
- history.go(n)
- history.goBack()
- history.goForward()

pushreplaceurlobject

- url
- { pathname, search, hash, state }


```
// Push a new entry onto the history stack.
history.push('/home');

// Push a new entry onto the history stack with a query string
// and some state. Location state does not appear in the URL.
history.push('/home?the=query', { some: 'state' });

// If you prefer, use a single location-like object to specify both
// the URL and state. This is equivalent to the example above.
history.push({
  pathname: '/home',
  search: '?the=query',
  state: { some: 'state' }
});

// Go back to the previous history entry. The following
// two lines are synonymous.
history.go(-1);
history.goBack();
```

1. basename

URL“base”URL basename URL

```
const history = createHistory({
  basename: '/the/base'
});

history.listen(location => {
  console.log(location.pathname); // /home
});

history.push('/home'); // URL is now /the/base/home
```

createMemoryHistorybasename

2. CreateBrowserHistory

createBrowserHistoryHTML5 pushStatereplaceStateurlforceRefresh

```
const history = createBrowserHistory({
  forceRefresh: true
});
```

3. createHashHistoryHash

createHashHistoryhashURL/'hashTypehash

```

const history = createHashHistory({
  hashType: 'slash' // the default
});

history.push('/home'); // window.location.hash is #/home

const history = createHashHistory({
  hashType: 'noslash' // Omit the leading slash
});

history.push('/home'); // window.location.hash is #home

const history = createHashHistory({
  hashType: 'hashbang' // Google's legacy AJAX URL format
});

history.push('/home'); // window.location.hash is #!/home

```

tcp http

HTTP 1.0 TCP TCP HTTP TCP Connection Keep-Alive
 Connection: Keep-Alive Keep-Alive keep-alive HTTP 4.5.5 Keep-Alive

HTTP 1.1 TCP HTTP
 HTTP 2.0 TCP HTTP TCP HTTP

Virtual Dom

VDOM DOM

- DOM
- DOM DOM DOM DOM
- DOM DOM DOM

png, webp

JPEG	
GIF	
PNG	
APNG	Firefox Safari iOS Safari
WebP	Chrome Opera Android Chrome Android Browser
SVG	IE8

0.1 + 0.2 0.3

- ECMAScript
- IEEE754 64 11
-

v8js

JS

JSpush, JSundefinedJSJS()

functionJSpushJSpush

returnJSJS/JS

JSJSsetTimeoutfetchnon-blockingJSJSpush())JSpush

common.js es6

CommonJS Nodejs Nodejs JavaScript ES6 (: AMD) ES6 ES6
Module ES6 Module Webpack export import Babel CommonJS

1. CommonJS ES6
2. CommonJS ES6
3. CommonJS ES6 Module
4. CommonJS ES6 Module
5. CommonJS this ES6 Module this undefined

Tree-Shaking

Tree-shaking Rollupwebpack2tree-shaking

tree-shaking modulesES6CommonJSrequire()

CommonJSCommonJStree-shaking

JavaScriptES6import()

Tree-shaking

ES6

- 1.
2. import
- 3.

uglify

1. ES6 Module
- 2.

:

- Tree-shakingexport defaultexport default { A, B, C } export { A, B, C }

WebSDK

- - API
 - APIAPI
-
-
-
- - SDK
 - SDK
 -
- Demo
 - DemoSDK
 - DemoSDK

webpack

1. JavaScript
2. apply
3. webpack
4. webpack
5. webpack

webpack

Compilerwebpack

Compiler

- entryOption: entry
- afterPlugins: compiler
- afterResolvers: resolver compiler
- environment: environment
- afterEnvironment: environment
- beforeRun: compiler.run() compiler
- run: records (hook into) compilercompiler
- watchRun: (compilation)compiler
- watchRun: (compilation)compiler

- normalModuleFactory: NormalModuleFactory normalModuleFactory
- contextModuleFactory: ContextModuleFactory contextModuleFactory
- beforeCompile: (compilation)compilationParams
- compile: (compilation)(hook into) compilercompilationParams
- thisCompilation: compilation compilationcompilation
- compilation: (compilation)compilation
- make: compilation
- afterCompile:
- shouldEmit: true/falsecompilation
- needAdditionalPass:
- emit: output compilation
- afterEmit: output compilation
- done: (compilation)stats
- failed: (compilation)error
- invalid: fileName, changeTime
- watchClose:

Compilation

Compilation

(loaded)(sealed)(optimized)(chunked)(hashed)(restored)

compilationCompilercompilation:

- buildModule: module
- rebuildModule: module

...

- seal: (compilation)
- unseal: (compilation)

...

- optimize:

CDN

httpcdn

CDNCDNhttpCDNback to the source request,

DNS

DNS

DNSDNSTTL

IPIPDNSChrome1DNSChromeDNS

```
chrome://net-internals/#dns
```

DNS

DNSTTLTTL

ISP DNS

ISPDNSTTLTTLDNSIP

vuemethodscomputedfilterswatch

methods

methods

computed

computeddatakeykeyreturnvaluecomputed

filters

filtersvue2.0vue

watch

watchdata

scoped style

<style> scoped attribute CSS Shadow DOM

```
/deep/ .abc {  
  
}
```

CSS Modules

CSS Modules Webpack css-loadercss-loadermodules CSS Modules

```
module: {  
  rules: [  
    // ...  
    {  
      test: /\.css$/,  
      loader: "css-loader?modules"  
    },  
  ],  
}
```

CSS

class CSS Modules

```
import React from 'react';  
import style from './App.css';  
  
export default () => {  
  return (  
    <h1 className={style.title}>  
      Hello World  
    </h1>  
  );  
};
```

```
/* App.css */  
  
.title {  
  color: red;  
}
```

```
<h1 class="_3zyde4l1yATC0kgn-DBWEL">  
  Hello World  
</h1>  
  
<style>  
  ._3zyde4l1yATC0kgn-DBWEL {  
    color: red;  
  }  
</style>
```

CSS Modules :global(.className)class

CSS Modules :local(.className).className

css-loader[hash:base64].title ._3zyde4l1yATC0kgn-DBWEL

webpack.config.js

```
module: {
  loaders: [
    // ...
    {
      test: /\.css$/,
      loader: "style-loader!css-loader?modules&localIdentName=[path][name]---[local]---[hash:base64:5]"
    },
  ]
}
```

Class

```
.className {
  background-color: blue;
}

.title {
  composes: className;
  color: red;
}
```

```
._2DHwuiHWMnKT0YG45T0x34 {
  color: red;
}

._10B-buq6_BE0T0l9urIjf8 {
  background-color: blue;
}
```

```
<h1 class="_2DHwuiHWMnKT0YG45T0x34 _10B-buq6_BE0T0l9urIjf8">
  Hello World
</h1>
```

```
/* another.css */
.className {
  background-color: blue;
}
```

```
.title {
  composes: className from './another.css';
  color: red;
}
```


CSS Modules PostCSS postcss-modules-values

webpack.config.js

```
var values = require('postcss-modules-values');

module.exports = {
  entry: __dirname + '/index.js',
  output: {
    publicPath: '/',
    filename: './bundle.js'
  },
  module: {
    rules: [
      {
        test: /\.jsx?$/,
        exclude: /node_modules/,
        use: [
          'babel-loader'
        ],
        query: {
          presets: ['es2015', 'stage-0', 'react']
        }
      },
      {
        test: /\.css$/,
        use: [
          'style-loader',
          {
            loader: 'css-loader',
            options: {
              modules: true,
            }
          },
          'postcss-loader'
        ]
      }
    ],
  },
  postcss: [
    values
  ]
};
```

```
/* color.css */
```

```
@value blue: #0c77f8;
@value red: #ff0000;
@value green: #aaf200;
```

```
@value colors: "./colors.css";
@value blue, red, green from colors;

.title {
  color: red;
  background-color: blue;
}
```

Vuevuex

eventBus

Vue eventBus ,

Vue.observable

Vue data

PerformanceObserver

```
const performanceMetrics = {};
function perfObserver(list, observer) {
  // "measure"
  var entries = list.getEntries();
  for (const entry of entries) {
    // `entry` is a PerformanceEntry instance.
    // `name` will be either 'first-paint' or 'first-contentful-paint'.
    const metricName = entry.name;
    const time = Math.round(entry.startTime + entry.duration);
    // FP
    if (metricName === 'first-paint') {
      performanceMetrics.fp = time;
    }
    // FCP
    if (metricName === 'first-contentful-paint') {
      performanceMetrics.fcp = time;
    }
  }
}
var observer2 = new PerformanceObserver(perfObserver);
observer2.observe({entryTypes: ["paint"]});
```

vConsole

vconsole

```
<script src="path/to/vconsole.min.js"></script>
<script>
// init vConsole
var vConsole = new VConsole();
console.log('Hello world');
</script>
```

import

```
import VConsole from 'vconsole/dist/vconsole.min.js' //import vconsole
let vConsole = new VConsole() //
```

vconsoledebug

network

AlloyLever

AlloyLeverAlloyTeamWeb vConsole

npm

```
npm install alloylever
```

js

```
<script src="alloylever.js"></script>
```

js

Eruda

Eruda

```
<script src="//cdn.jsdelivr.net/npm/eruda"></script>
<script>
eruda.init();
console.log(' ');
</script>
```

psiph5

spy-debugger

spy-debugger webviewHybridAppHTTP/HTTPSUSB

- 1.
2. USB
3. HTTPS
4. spy-debuggerweinrenode-mitmproxyAnyProxy
5. ApphttpswebviewhttpsSSL pinningApp
6. (AnyProxy) ()

DevTools

android&Html5WebViewDevToolschromeWebView

DevToolswebview!

:

1. USB
2. webview
3. USB
4. chrome:chrome://inspect/#devices
5. inspect

DevTools

dev-server

webpack-dev-server webpack webpack-dev-middlewarewebpack-dev-server express
webpack compiler webpack websocket bundle.js websocket webpack-dev-
middleware webpack compiler outputFileSystem in-memory fileSystem webpack
watch webpack

webpack ok hot liveReload hotReload hotReload

hot HMR hot accepted accepted accept

<https://blog.csdn.net/LuckyWinty/article/details/109507412>

webpackpluginloader

webpackloaderplugin

Loader""

Plugin""webpackwebpackapplycompilewebpack

Loader

- module.exports
- source()
- (loaderloader)
- return()

Plugin

-
- apply
- webpackAPI

- webpack

webpack

- webpack.config.js
- compiler plugins webpack
- webpack.config.js entry AST
- loader loader
- UglifyPlugin loader UglifyJs clean-webpack-plugin dist
- entry output chunk
- output chunk

CSSWebpack

jscsshtml

webpackgulp

gulp webpack

```
,      „SPA
      „babeljs
```

webpack

webpack

loadercss-loaderstyle-loader

1. css-loader css @import url
2. style-loader DOMheadstyle innerHTML

loader

loaderloaderscss:

- sass-loaderscsscss
- css-loadercss
- style-loadercssJavaScript

Redux

1. Redux

reactpropsreduxstore

2. Redux

store dispatch state action store store subscribe state render

3. Redux

- Redux store
- State
React setState state render Redux state action action state reducer
reducer action state Redux
- Reducer
Reducer action state state action state Reducer state state Redux Redux
(combineReducers) Redux state == state state == Redux

4.

4.1 createStore

```
export default function createStore(reducer, initialState) {
  let state = initialState //
  let listeners = []
  //
  function getState() {
    return state
  }
  //reducer
  function dispatch(action) {
    //reducer state
    state = reducer(state, action)
    //
    listeners.forEach(listener => listener())
  }

  // state
  function subscribe(listener) {
    listeners.push(listener) //
    return function () {
      let index = listeners.indexOf(listener)
      listeners.splice(index, 1)
    }
  }
  //
  dispatch({type: '@@REDUX_INIT'})
  return {
    getState,
    dispatch,
    subscribe
  }
}
```

action_type.js

```
export const ADD = 'ADD'
export const MINUS = 'MINUS'
```

reducer.js

```
import * as TYPES from './actions_type'
let initialState = {number: 0}
export default function reducer (state = initialState, action) {
  switch (action.type) {
    case TYPES.ADD:
      return {number: state.number + 1}
    case TYPES.MINUS:
      return {number: state.number - 1}
    default:
      return state
  }
}
```

store.js

```
import {createStore} from 'redux'
import reducer from './reducer'
const store = createStore(reducer)
export default store
```

Counter.js

```
import React, {useState,useEffect} from 'react'
import store from '../store'
import * as TYPES from '../store/actions_type'
//
export default class Counter extends React.Component {
  state = {number: store.getState().number}
  componentDidMount() {
    //
    this.unsubscribe = store.subscribe( () => {
      this.setState({number: store.getState().number})
    })
  }
  //
  componentWillUnmount() {
    this.unsubscribe()
  }
  render() {
    return (
      <div>
        <p>{this.state.number}</p>
        <button onClick={() => store.dispatch({type:TYPES.ADD})}>+
      </button>
        <button onClick={() => store.dispatch({type:TYPES.MINUS})}>-
      </button>
      </div>
    )
  }
}
```

```

    }
  }
  //
  export default function Counter (props) {
    let [number, setNumber] = useState(store.getState().number)
    //
    useEffect(() => {
      return store.subscribe(() => { //
        setNumber(store.getState().number)
      })
    }, []) // useEffect
    //
    return (
      <div>
        <p>{store.getState().number}</p>
        <button onClick={() => store.dispatch({type: TYPES.ADD})}>+</button>
        <button onClick={() => store.dispatch({type: TYPES.MINUS})}>-
      </button>
      </div>
    )
  }
  /**
   *
   * 1.
   * 2.
   * 3.
   */

```

4.2 bindActionCreators

```

export default function (actionCreators, dispatch) {
  let boundActionCreators = {}
  //action
  for(let key in actionCreators) {
    boundActionCreators[key] = function(...args) {
      //dispatchaction
      return dispatch(actionCreators[key](...args))
    }
  }
  return boundActionCreators
}

```



```

function bindActionCreator(actionCreator, dispatch) {
  return function () {
    return dispatch(actionCreator.apply(this, arguments))
  }
}

/**
   actionCreators: action createaction create
   dispatch: store.dispatch
*/
export default function bindActionCreators(actionCreators, dispatch) {
  // actionCreatorsbindActionCreatoraction createdispatch
  if (typeof actionCreators === 'function') {
    return bindActionCreator(actionCreators, dispatch)
  }
  // actionCreatorsnull
  if (typeof actionCreators !== 'object' || actionCreators === null) {
    throw new Error(
      `bindActionCreators expected an object or a function, instead received
${actionCreators === null ? 'null' : typeof actionCreators}. ` +
      `Did you write "import ActionCreators from" instead of "import * as
ActionCreators from"?`
    )
  }

  // action create
  const keys = Object.keys(actionCreators)
  // dispatchaction create
  const boundActionCreators = {}
  for (let i = 0; i < keys.length; i++) {
    const key = keys[i]
    const actionCreator = actionCreators[key]
    // action create
    if (typeof actionCreator === 'function') {
      //
      boundActionCreators[key] = bindActionCreator(actionCreator, dispatch)
    }
  }
  //
  /**
    boundActionCreators
    {
      actionCreator: function() {dispatch(actionCreator.apply(this,
arguments))}
    }
  */
  return boundActionCreators
}

```

Counter.js

```

import React, {useState,useEffect} from 'react'
import store from '../store'
import actions from '../store/actions_type'
import { bindActionCreators } from 'redux'

let boundActions = bindActionCreators(actions, store.dispatch)
//
export default class Counter extends React.Component {
  state = {number: store.getState().number}
  componentDidMount() {
    //
    this.unsubscribe = store.subscribe( () => {
      this.setState({number: store.getState().number})
    })
  }
  //
  componentWillUnmount() {
    this.unsubscribe()
  }
  render() {
    return (
      <div>
        <p>{this.state.number}</p>
        <button onClick={boundActions.add}>+</button>
        <button onClick={boundActions.minus}>-</button>
      </div>
    )
  }
}

```

4.3 combineReducers

```

/**
 * reducer
 * 1.reducerreducer
 * @param {*} state
 * @param {*} action
 */
export default function combineReducers(reducers) {
  //statestate = {counter1:{number:0},counter2:{number:0}}
  return function (state={}, action) {
    let nextState = {}
    // debugger
    for(let key in reducers) {
      let reducerForKey = reducers[key] //key = counter1,
      //
      let previousStateForKey = state[key] //{number:0}
      let nextStateForKey = reducerForKey(previousStateForKey,action) //
reducer
      nextState[key] = nextStateForKey //{number: 1}
    }
    return nextState
  }
}

```

react-redux Providerconnect

Provider.js

```

import React from 'react'
import ReactReduxContext from './context'
/**
 * Provider store
 * @param {*} props
 */
export default function (props) {
  return (
    <ReactReduxContext.Provider value={{store:props.store}}>
      {props.children}
    </ReactReduxContext.Provider>
  )
}

```

connect.js

```

import React, {useContext, useState, useEffect} from 'react'
import ReactReduxContext from './context'
import { bindActionCreators } from 'redux'

export default function (mapStateToProps, mapDispatchToProps) {
  return function(OldComponent){
    //
    return function(props) {
      //state
      let context = useContext(ReactReduxContext) //context.store
      let [state, setState] =
        useState(mapStateToProps(context.store.getState()))
      //useState
      let [boundActions] = useState(() =>
        bindActionCreators(mapDispatchToProps, context.store.dispatch))
      //
      useEffect(() => {
        return context.store.subscribe(() => {
          setState(mapStateToProps(context.store.getState()))
        })
      }, [])
      // render
      // let boundActions =
        bindActionCreators(mapDispatchToProps, context.store.dispatch)
      //
      return <OldComponent {...props} {...state} {...boundActions} />
    }
  }
}

```

4.5 redux middlewares

reduxaction -> reducer dispatchactionreducer -> ->reduxreduxaction ->
 -> reducer dispatch actionmiddlewaresreducer

action

4.5.1

```

import {createStore} from 'redux'
import reducer from './reducers/Counter'
const store = createStore(reducer)
//1.dispatch
// let dispatch = store.dispatch
// //2.dispatch
// store.dispatch = function (action) {
//     console.log('',store.getState())
//     //dispatch
//     dispatch(action)
//     console.log('', store.getState())
// }

function logger ({dispatch, getState}) { //dispatchdispatch
    return function (next) { //nextdispatchstore.dispatch
        //dispatch
        return function (action) {
            console.log('', getState())
            next(action) //store.dispatch(action)
            console.log('', getState())
            // dispatch(action) //dispatchdispatch
        }
    }
}

function applyMiddleware(middleware) { //middleware = logger
    return function(createStore) {
        return function (reducer) {
            let store = createStore(reducer) // store
            let dispatch
            middleware = middleware({ //logger getState dispatch
middleware = function(next)
                getState: store.getState,
                dispatch: action => dispatch(action) //dispatch store.dispatch
            })
            dispatch = middleware(store.dispatch) //middleware store.dispatch
next
            return {
                ...store,
                dispatch
            }
        }
    }
}

let store = applyMiddleware(logger)(createStore)(reducer)
export default store

```

4.5.2 thunk

```

function thunk ({dispatch, getState}) {
  return function (next) {
    return function (action) {
      if(typeof action === 'function') {
        action(dispatch, getState)
      }else {
        next(action)
      }
    }
  }
}

function applyMiddleware(middleware) { //middleware = logger
  return function(createStore) {
    return function (reducer) {
      let store = createStore(reducer) // store
      let dispatch
      middleware = middleware({ //logger getState dispatch
middleware = function(next)
      getState: store.getState,
      dispatch: action => dispatch(action) //dispatch store.dispatch
    })
      dispatch = middleware(store.dispatch) //middleware store.dispatch
next
      return {
        ...store,
        dispatch
      }
    }
  }
}

let store = applyMiddleware(thunk)(createStore)(reducer)
export default store

```

4.5.3

applyMiddlewareapplyMiddleware

```

function compose(...funcs) {
  if (funcs.length === 0) {
    return (arg) => arg
  }

  if (funcs.length === 1) {
    return funcs[0]
  }

  return funcs.reduce((a, b) => (...args) => a(b(...args)))
}

function applyMiddleware(...middlewares) { //middleware = logger
  return function(createStore) {
    return function (reducer) {
      let store = createStore(reducer) // store
      let dispatch = () => {
        throw new Error(
          'Dispatching while constructing your middleware is not allowed.'
          +
          'Other middleware would not be applied to this dispatch.'
        )
      }
      let middlewareAPI = {
        getState: store.getState,
        dispatch: action => dispatch(action) //dispatch store.dispatch
      }
      chain= middlewares.map(middleware => middleware(middlewareAPI))
      dispatch = compose(...chain)(store.dispatch)
      // dispatch = middleware(store.dispatch) //middleware
store.dispatch next
      return {
        ...store,
        dispatch
      }
    }
  }
}

let store = applyMiddleware(promise,thunk, logger)(createStore)(reducer)

```

React

setState
 componentdirtyComponents = [], batchUpdateTransactionclose
 dirtyComponentsComponentupdateComponentrenderrenderedElementrenderedElement
 updatere-renderpropsmarkupDOM

TLS

Transport Layer Security (TLS) TLS

TLS

- Client hello (random_C)
- Server hello(random_S)
-
- Server hello done
-
- Pre-Master Pre-Master
- Pre-Master Pre-Master random_C random_S pre-master
enc_key=Fuc(random_C, random_S, pre-master)
- Change cipher spec
- Client finished
- Change cipher spec
- Server finished
-

WeakRef FinalizationRegistry

WeakRefAPI

WeakRef FinalizationRegistry ApiChrome v84 Node.js 13.0.0