

WebRTC: Error Handling

W3C TPAC

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Date

Basic Principles

- ❖ For errors that can be detected in a synchronous fashion (<50 ms without blocking the main thread): **Throw an exception**
- ❖ For all other errors: **Invoke the error callback**
 - ❖ Nice to have: Make the error callback mandatory
- ❖ When there is ambiguity, *favor the callback over an exception*

What to throw

- ❖ An *Error* object, well-defined in JS
- ❖ `name` and `message` properties supported by all browsers
 - ❖ `stack` and `lineNumber` are optional, but very useful (supported by Mozilla)

Example

```
1 function createOffer(successCb, errorCallback)
2 {
3     if (!successCb || typeof successCb !== "function") {
4         var e = new Error("Invalid success callback");
5         e.name = "INVALID_CALLBACK";
6         throw e;
7     }
8     ...
9 }
```

```
1 var pc = new RTCPeerConnection();
2 try {
3     pc.createOffer(null);
4 } catch(e) {
5     console.log(e.message);
6 }
7
8 -> "Invalid success callback"
```

What to pass the callback

- ❖ Same *Error* object used for Exceptions
- ❖ The `message` property should be human readable, and does not necessarily have to be exactly the same across UAs
- ❖ UAs are encouraged to be as detailed as possible, and setting the `stack` and `LineNumber` properties whenever it makes sense
- ❖ If an error callback isn't provided, there will be a lot of silent failures
RECOMMENDATION: Make error callback mandatory
- ❖ There is **always** either an exception or an error when a call fails

Example

```
1  var pc = new RTCPeerConnection();
2  ...
3
4  function err(e)
5  {
6    console.log(e.name);
7  }
8
9  try {
10   pc.setRemoteDescription(offer, function() {
11     pc.createAnswer(function() {}, err);
12   }, err);
13 } catch(e) {
14   console.log(e.message);
15 }
16
17 -> "INVALID_SDP"
18 -> "INVALID_STATE"
```

More Examples

- ❖ *createOffer*

Exceptions: INVALID_CALLBACK, INVALID_CONSTRAINTS, INVALID_STATE

- ❖ *createAnswer*

Exceptions: INVALID_CALLBACK, INVALID_CONSTRAINTS, INVALID_STATE

Errors: INVALID_SDP, INCOMPATIBLE_CONSTRAINTS

Details

```
1 e.name = "INVALID_SDP"  
2 e.message =  
3   "a=rtpmap:98 H264/90000\n" +  
4   "~~~~~^\\n" +  
5   "Unrecognized codec"  
6 e.lineNumber = 21
```

```
1 e.name = "INCOMPATIBLE_CONSTRAINTS"  
2 e.message = "Video required, but none provided"  
3
```


More Examples

- ❖ *setLocalDescription*
Exceptions: INVALID_CALLBACK, INVALID_DESCRIPTION
Errors: INVALID_SDP
- ❖ *setRemoteDescription*
Exceptions: INVALID_CALLBACK, INVALID_DESCRIPTION
Errors: INVALID_SDP
- ❖ In either case, the success callback is not called until the description has been fully applied (roll-back essentially means failure callback is invoked for the description that could not be applied)

Outstanding issues

- ❖ Multiple *createOffer* calls
- ❖ Should *close* be idempotent?
- ❖ Calling *updateIce* in the success callback for *createOffer*