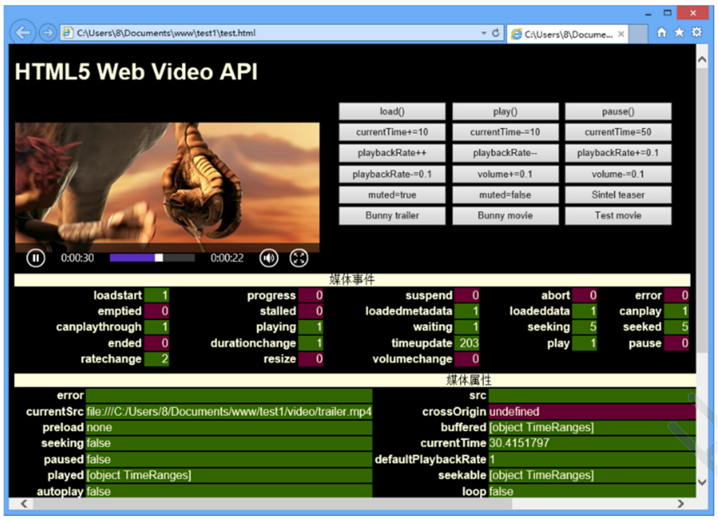
4.5.4 访问多媒体属性、方法和事件

整合 HTML5 多媒体 API 中各种属性、方法和事件，本例演示如何在一个视频中实现对这些信息进行访问和操控，示例效果如图 E4.1 所示。



HTML5 Web Video API

媒体事件

loadstart	1	progress	0	suspend	0	abort	0	error	0
emptied	0	stalled	0	loadedmetadata	1	loadeddata	1	canplay	1
canplaythrough	1	playing	1	waiting	1	seeking	5	seeked	5
ended	0	durationchange	1	timeupdate	203	play	1	pause	0
ratechange	2	resize	0	volumechange	0				

媒体属性

error		src	
currentSrc	file:///C:/Users/8/Documents/www/test1/video/trailer.mp4	crossOrigin	undefined
preload	none	buffered	[object TimeRanges]
seeking	false	currentTime	30.4151797
paused	false	defaultPlaybackRate	1
played	[object TimeRanges]	seekable	[object TimeRanges]
autoplay	false	loop	false

图 E4.1 HTML5 多媒体 API 接口访问

【操作步骤】

第 1 步，设计文档结构。整个结构包含 3 部分：<video id='video'>视频播放界面、<div id='buttons'>视频控制方法集、<div id="info">接口访问信息汇总。

```
<h1>HTML5 Web Video API</h1>
<div>
    <video id='video' controls preload='none' poster="video/trailer.png">
        <source id='mp4' src="video/trailer.mp4" type='video/mp4'>
        <source id='webm' src="video/trailer.webm" type='video/webm'>
        <source id='ogv' src="video/trailer.ogv" type='video/ogg'>
        <p>你的浏览器不支持 HTML5 video 元素。</p>
    </video>
    <div id='buttons'>
        <button onclick="getVideo().load()">load()</button>
        <button onclick="getVideo().play()">play()</button>
        <button onclick="getVideo().pause()">pause()</button>
        <button onclick="getVideo().currentTime+=10">currentTime+=10</button>
        <button onclick="getVideo().currentTime-=10">currentTime-=10</button>
        <button onclick="getVideo().currentTime=50">currentTime=50</button>
        <button onclick="getVideo().playbackRate++">playbackRate++</button>
        <button onclick="getVideo().playbackRate--">playbackRate--</button>
        <button onclick="getVideo().playbackRate+=0.1">playbackRate+=0.1</button>
        <button onclick="getVideo().playbackRate-=0.1">playbackRate-=0.1</button>
        <button onclick="getVideo().volume+=0.1">volume+=0.1</button>
        <button onclick="getVideo().volume-=0.1">volume-=0.1</button>
        <button onclick="getVideo().muted=true">muted=true</button>
        <button onclick="getVideo().muted=false">muted=false</button>
        <button onclick="switchVideo(0);">Sintel teaser</button>
        <button onclick="switchVideo(1);">Bunny trailer</button>
        <button onclick="switchVideo(2);">Bunny movie</button>
        <button onclick="switchVideo(3);">Test movie</button>
    </div>
    <div id="info">
        <table>
            <caption>媒体事件</caption>
            <tbody id='events'> </tbody>
        </table>
        <table>
            <caption>媒体属性</caption>
            <tbody id='properties'></tbody>
        </table>
        <table id='canPlayType'>
            <caption>播放类型</caption>
            <tbody id='m_video'></tbody>
        </table>
        <table id='tracks'>
            <caption>轨道</caption>
            <tbody>
                <tr><th>Audio</th><th>Video</th><th>Text</th></tr>
                 <tr><td id='m_audiotracks' class='false'>?</td><td id='m_videotracks' class='false'>?</td> <td id='m_texttracks'
class='false'>?</td></tr>
            </tbody>
        </table>
    </div>
</div>
```

第 2 步，初始化多媒体事件和属性数据。

```
//初始化事件类型
var media_events = new Array();
media_events["loadstart"] = 0;
media_events["progress"] = 0;
media_events["suspend"] = 0;
media_events["abort"] = 0;
media_events["error"] = 0;
media_events["emptied"] = 0;
media_events["stalled"] = 0;
media_events["loadedmetadata"] = 0;
media_events["loadeddata"] = 0;
media_events["canplay"] = 0;
media_events["canplaythrough"] = 0;
media_events["playing"] = 0;
media_events["waiting"] = 0;
media_events["seeking"] = 0;
media_events["seeked"] = 0;
media_events["ended"] = 0;
media_events["durationchange"] = 0;
media_events["timeupdate"] = 0;
media_events["play"] = 0;
media_events["pause"] = 0;
media_events["ratechange"] = 0;
media_events["resize"] = 0;
media_events["volumechange"] = 0;
//在数组中汇集多媒体属性
var media_properties = [ "error", "src", "srcObject", "currentSrc", "crossOrigin", "networkState", "preload", "buffered",
"readyState", "seeking", "currentTime", "duration","paused", "defaultPlaybackRate", "playbackRate", "played", "seekable", "ended",
"autoplay", "loop", "controls", "volume","muted", "defaultMuted", "audioTracks", "videoTracks", "textTracks", "width", "height",
"videoWidth", "videoHeight", "poster" ];
```

第 3 步，初始化事件函数，在该函数中根据初始化的多媒体事件数组 media_events，逐一读取每一个元素所存储的事件类型，然后为播放的视频对象绑定事件。同时使用 for 语句把每个事件的当前状态值汇集并显示在页面表格中，如上图所示。

```
function init_events(id, arrayEventDef) {
    var f;
    for (key in arrayEventDef) {
        document._video.addEventListener(key, capture, false);
    }
    var tbody = document.getElementById(id);
    var i = 1;
    var tr = null;
    for (key in arrayEventDef) {
        if (tr == null) tr     = document.createElement("tr");
        var th = document.createElement("th");
        th.textContent = key;
        var td = document.createElement("td");
        td.setAttribute("id", "e_" + key);
        td.textContent = "0";
        td.className = "false";
        tr.appendChild(th);
        tr.appendChild(td);

        if ((i++ % 5) == 0) {
            tbody.appendChild(tr);
            tr = null;
        }
    }
    if (tr != null) tbody.appendChild(tr);
}
```

第 3 步，初始化属性函数，在该函数中根据初始化的多媒体属性数组 media_properties，逐一读取每一个元素所存储的属性，然后使用 do 语句把每一个属性值显示在页面表格中，如上图所示。

```
function init_properties(id, arrayPropDef, arrayProp) {
    var tbody = document.getElementById(id);
    var i = 0;
    var tr = null;
    do {
        if (tr == null) tr     = document.createElement("tr");
        var th = document.createElement("th");
        th.textContent = arrayPropDef[i];
        var td = document.createElement("td");
        var r;
        td.setAttribute("id", "p_" + arrayPropDef[i]);
        r = eval("document._video." + arrayPropDef[i]);
        td.textContent = r;
        if (typeof(r) != "undefined") {
            td.className = "true";
        } else {
            td.className = "false";
        }
        tr.appendChild(th);
        tr.appendChild(td);
```

```
            arrayProp[i] = td;
            if ((++i % 3) == 0) {
                tbody.appendChild(tr);
                tr = null;
            }
        } while (i < arrayPropDef.length);
        if (tr != null) tbody.appendChild(tr);
    }
```

第 4 步，定义页面初始化函数，在该函数 init()中，获取页面中的视频播放控件，然后调用 init_events()和 init_properties()函数，同时使用定时器，定义每隔 250 毫秒，将调用一次 update_properties()，该函数将不断刷新多媒体属性值，并动态显示出来。

```
    function init() {
        document._video = document.getElementById("video");
        webm = document.getElementById("webm");
        media_properties_elts = new Array(media_properties.length);
        init_events("events", media_events);
        init_properties("properties", media_properties, media_properties_elts);
        init_mediatypes();
        setInterval(update_properties, 250);
    }
```

本例完整代码可以参考本节示例源代码。