
Subject: Re: [PROPOSAL]: AsyncQueue class (a single threaded synchronization tool) for U++

Posted by [Oblivion](#) on Tue, 01 Mar 2016 23:22:31 GMT

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Hello Mirek,

I've got rid of VarArgs, VectorMap, DoJob(), and re-based AsyncQueue class as a thin wrapper of vector containing callbacks.

Now it can also utilize lambda callbacks in-place (e.g. this way any StartFoo() can be both used for programming the queue, and as the place to write the actual non-blocking code.), and have backward compatibility.

While U++ callbacks allow up to 5 args, using std::tuple and std::get it can be increased by the user, if necessary.

If you approve this one, I'll rewrite the document accordingly and upload the package asap...

```
class AsyncQueue : Moveable<AsyncQueue> {

    Vector<Callback> job_queue;
    bool halted;

protected:
    Callback&      AddJob()                { return job_queue.Add(); }
    AsyncQueue&    AddJob(Callback cb)     { job_queue.Add(cb); return *this; }
    Callback&      InsertJob(int i)        { return job_queue.Insert(i); }
    AsyncQueue&    InsertJob(int i, Callback cb) { job_queue.Insert(i, cb); return *this; }
    Callback&      GetJob(int i)           { return job_queue.At(i); }
    void           RemoveJob(int i)         { job_queue.Remove(i); }
    void           ProcessQueue()           { if(!job_queue.IsEmpty())
job_queue.Remove(0); }
    void           ClearQueue()             { if(!job_queue.IsEmpty()) job_queue.Clear();
halted = false; }
    bool           QueueHasJobs() const     { return job_queue.GetCount() > 1; }
    bool           QueueIsHalted() const    { return halted; }
    bool           QueueIsEmpty() const     { return job_queue.IsEmpty(); }
    bool           GetJobCount() const      { return job_queue.GetCount(); }
    void           Halt()                   { job_queue.Clear(); halted = true; }

public:
    virtual bool    Do()                    { if(!job_queue.IsEmpty()) GetJob(0()); WhenDo();
return InProgress(); }

    bool           InProgress() const       { return !job_queue.IsEmpty(); }
```

```

bool      IsSuccess() const      { return job_queue.IsEmpty() && !halted; }
bool      IsFailure() const      { return halted; }

Callback  WhenDo;

AsyncQueue() : halted(false) {}
virtual ~AsyncQueue() {}

AsyncQueue(AsyncQueue rval_ a)      { job_queue = pick(a.job_queue); halted =
a.halted; }
void operator=(AsyncQueue rval_ a)  { ClearQueue(); job_queue =
pick(a.job_queue); halted = a.halted; }
};

```

What do you think?

Regards,
Oblivion
