

# API Intel® VTune™ Profiler

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# VTune API

- Why do we need API calls
- Sample instrumentation
- Further Reading

# Why do we need API calls

- Hard to navigate in complicated timeline
- Group functions
- Insert new counters
- Limit collection to certain regions

# User API

## Task APIs

- A **task** is a logical **unit of work** performed by a particular thread
- Tasks can be **nested**
- You can use task APIs to **assign tasks** to threads
- **One thread** executes **one task** at a given time
- Tasks may correspond to **functions**, **scopes**, or a **case block** in a switch statement

# User API

## Task APIs reference

Use This Primitive	To Do This
<code>void <b>__itt_task_begin</b> (const __itt_domain *domain, __itt_id taskid, __itt_id parentid, __itt_string_handle *name)</code>	Create a task instance on a thread. This becomes the current task instance for that thread. A call to <code>__itt_task_end()</code> on the same thread ends the current task instance.
<code>void <b>__itt_task_end</b> (const __itt_domain *domain)</code>	End a task instance on a thread.

Parameter	Description
<code>__itt_domain</code>	The domain of the task.
<code>__itt_id taskid</code>	This is a reserved parameter.
<code>__itt_id parentid</code>	This is a reserved parameter.
<code>__itt_string_handle</code>	The task string handle.

# User API

## Task APIs example

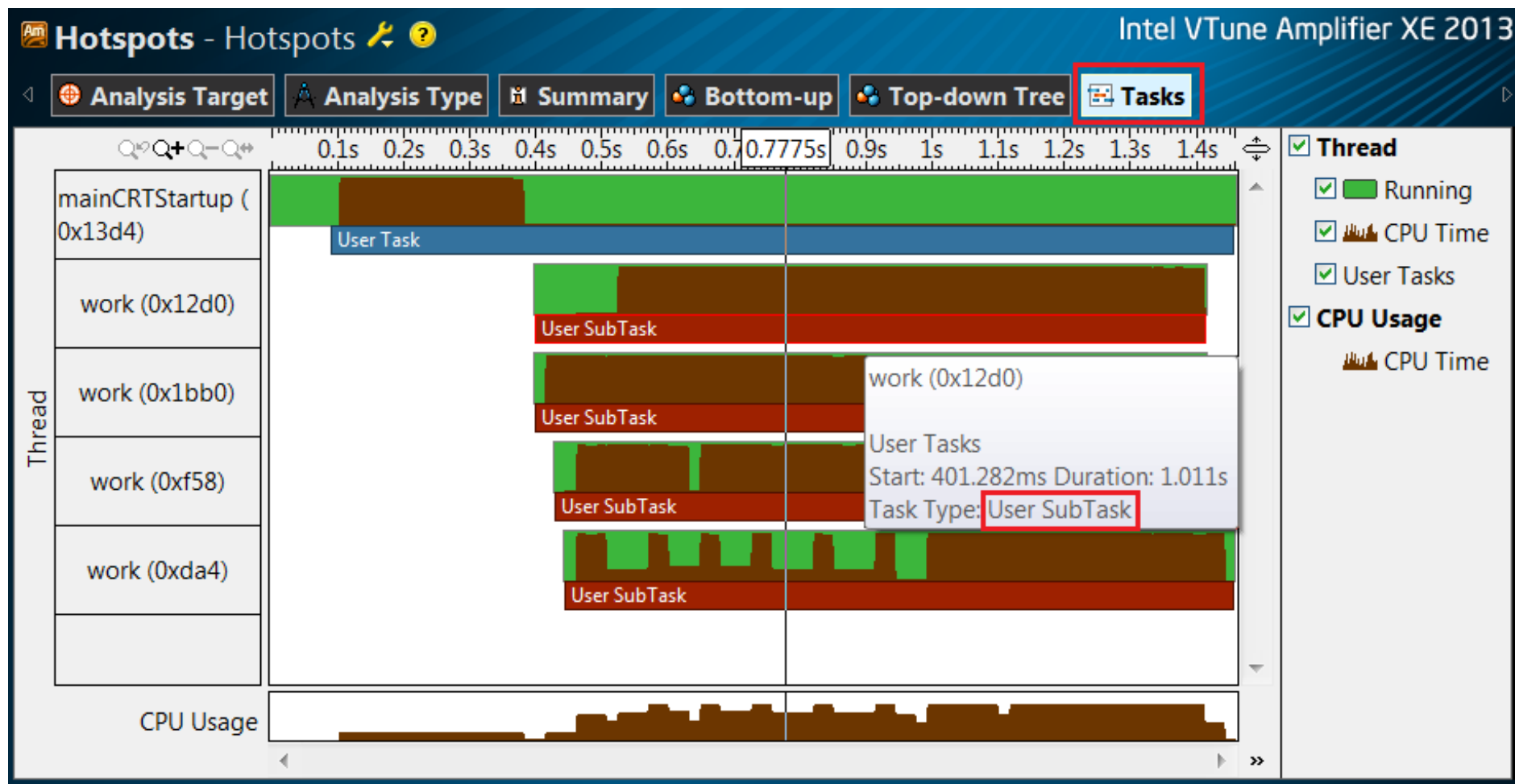
```
__itt_domain* domain = __itt_domain_create(L"Task Domain");
__itt_string_handle* UserTask = __itt_string_handle_create(L"UserTask");
__itt_string_handle* UserSubTask = __itt_string_handle_create(L"UserSubTask");

int main(int argc, char* argv[])
{
    ...
    __itt_task_begin (domain, __itt_null, __itt_null, UserTask);
    //create many threads to call work()
    __itt_task_end (domain);
    ...
}

work()
{
    __itt_task_begin (domain, __itt_null, __itt_null, UserSubTask);
    do_foo();
    __itt_task_end (domain);
    return 0;
}
```

# Using Task API

## Hotspots analysis – Task view



# Further Reading

- <https://www.intel.com/content/www/us/en/docs/vtune-profiler/user-guide/2023-0/instrumenting-your-application.html>
- <https://www.intel.com/content/www/us/en/docs/vtune-profiler/user-guide/2023-0/task-api.html>
- <https://www.intel.com/content/www/us/en/docs/vtune-profiler/user-guide/2023-0/counter-api.html>
- <https://www.intel.com/content/www/us/en/docs/vtune-profiler/user-guide/2023-0/collection-control-api.html>



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