

UVVM Common Methods – Quick Reference

await_completion (vvc_target, vvc_instance_idx, [vvc_channel,] [wanted_idx,] [timeout, [msg]])

Example: await_completion(SBI_VVCT, 1, 100 ns, "Waiting for all SBI commands to complete");

await_any_completion (vvc_target, vvc_instance_idx, [vvc_channel,] [wanted_idx,] lastness, [timeout, [msg, [await_completion_idx]]])

Example: await_any_completion(SBI_VVCT, 1, NOT_LAST, 100 ns, "Add SBI_VVC#1 to the await_any_completion group");
await_any_completion(SBI_VVCT, 2, LAST, 100 ns, "Add SBI_VVC#2 as the last member of the group: Waiting until the first in the group completes their commands");

enable_log_msg (vvc_target, vvc_instance_idx, [vvc_channel,] msg_id, [msg])

Example: enable_log_msg(UART_VVCT, 1, RX, ID_BFM);

disable_log_msg (vvc_target, vvc_instance_idx, [vvc_channel,] msg_id, [msg])

Example: disable_log_msg(SBI_VVCT, 1, ID_BFM);

fetch_result (vvc_target, vvc_instance_idx, [vvc_channel,] wanted_idx, result, [fetch_is_accepted,] [msg, [alert_level]])

Example: fetch_result(SBI_VVCT, 1, v_idx, v_result, v_fetch_is_accepted);

flush_command_queue (vvc_target, vvc_instance_idx, [vvc_channel,] [msg])

Example: flush_command_queue(AXILITE_VVCT, 1);

terminate_current_command (vvc_target, vvc_instance_idx, [vvc_channel,] [msg])

Example: terminate_current_command(SBI_VVCT, 1);

terminate_all_commands (vvc_target, vvc_instance_idx, [vvc_channel,] [msg])

Example: terminate_all_commands(UART_VVCT, 1, RX);

insert_delay (vvc_target, vvc_instance, [vvc_channel,] delay, [msg])

Example: insert_delay(SBI_VVCT, 1, 100 ns);
Example: insert_delay(UART_VVCT, 1, TX, 10); -- 10 Clock cycles delay using the VVC clk

get_last_received_cmd_index (vvc_target, vvc_instance, [vvc_channel,] [msg])

Example: get_last_received_cmd_index (SBI_VVCT, 1, 100 ns);
Example: get_last_received_cmd_index (UART_VVCT, 1, RX);



UVVM™

VHDL 2008 only

UVVM methods package - target parameters

Name	Type	Example(s)	Description
vvc_target	t_vvc_target_record	UART_VVCT	VVC target type compiled into each VVC in order to differentiate between VVCs.
vvc_instance_idx	Integer	1	Instance number of the VVC used in this method
vvc_channel	t_channel	TX, RX or ALL_CHANNELS	The VVC channel of the VVC instance used in this method

UVVM methods package - functional parameters

Name	Type	Example(s)	Description
wanted_idx	natural	50	The index to be fetched or awaited
timeout	time	100 ns	The maximum time to await completion of a specified command, or all pending commands. An alert of severity ERROR will be triggered if the awaited time is equal to the specified timeout.
msg	string	"Awaiting CR from UART"	A message parameter to be appended to the log when the method is executed.
msg_id	t_msg_id	ID_SEQUENCER	The ID to enable/disable with enable/disable_log_msg(). For more info, see the UVVM-Util documentation.
result	t_vvc_result	v_result	The output where the fetched data is to be placed with fetch_result()
fetch_is_accepted	boolean	v_fetch_is_accepted	Output containing a Boolean that states if the fetch command was accepted or not. Will be false if the specified command index has not been stored.
alert_level	t_alert_level	TB_WARNING	The alert level used for the alert which occurs when a fetch_result() command is not accepted
delay	time or natural	100 ns or 10	Delay to be inserted in the insert_delay() procedure, either as time or number of clock cycles

UVVM VVC Framework Common Methods details

All VVC procedures are defined in the UVVM VVC framework common methods package, `td_vvc_framework_common_methods_pkg.vhdp`

1 UVVM VVC Framework Common Methods details and examples

Method	Description
<code>await_completion()</code>	<p>Tells the VVC to await the completion of either all pending commands or a specified command index.</p> <p>A message with log ID <code>ID_IMMEDIATE_CMD_WAIT</code> will be logged before waiting, and a message with log ID <code>ID_IMMEDIATE_CMD</code> will be logged at the end of the wait.</p> <p>The procedure will report an alert if not all commands have completed within the specified time, timeout. The severity of this alert will be <code>TB_ERROR</code>.</p> <p><code>await_completion(vvc_target, vvc_instance, timeout, msg)</code> <code>await_completion(vvc_target, vvc_instance, wanted_idx, timeout, msg)</code> <code>await_completion(vvc_target, vvc_instance, vvc_channel, timeout, msg)</code> <code>await_completion(vvc_target, vvc_instance, vvc_channel, wanted_idx, timeout, msg)</code></p> <p>e.g.:</p> <ul style="list-style-type: none">- <code>await_completion(SBI_VVCT, 1, 16 ns, "Await execution. For single entry queue");</code>- <code>await_completion(SBI_VVCT, 1, v_cmd_idx, 100 ns, "Wait for sbi_read to finish");</code>

await_any_completion()

Adds a VVC to the await_any_completion group, so that the sequencer can wait until any VVC in the group completes.

In the same way as await_completion, each await_any_completion call can specify that the VVC in question shall wait for either all pending commands (default) or a specified command index (wanted_idx parameter).

When the sequencer calls await_any_completion with 'lastness' = NOT_LAST, it is not blocked so that it can continue adding members to the await_any_completion group by calling await_any_completion for each VVC.

When the sequencer calls await_any_completion with 'lastness' = LAST, the sequencer is blocked until any of the VVCs in the group are done waiting for their command(s) to complete.

The optional parameter await_completion_idx is useful for separating the groups when calling await_any_completion from multiple sequencers simultaneously:

Each VVC in the group will log a message with ID ID_IMMEDIATE_CMD_WAIT before waiting, and a message with log ID ID_IMMEDIATE_CMD at the end of the wait. The procedure will report an alert if not all commands have completed within the specified time, **timeout**. The severity of this alert will be TB_ERROR.

```
await_any_completion(vvc_target, vvc_instance, lastness, timeout, msg, await_completion_idx)
```

```
await_any_completion(vvc_target, vvc_instance, wanted_idx, lastness, timeout, msg, await_completion_idx)
```

```
await_any_completion(vvc_target, vvc_instance, vvc_channel, lastness, timeout, msg, await_completion_idx)
```

```
await_any_completion(vvc_target, vvc_instance, vvc_channel, wanted_idx, lastness, timeout, msg, await_completion_idx)
```

The following example is a sequence of calls that results in waiting until the first of the 3 VVCs completes:

```
await_any_completion(SBI_VVCT, 1, NOT_LAST, 1 ms, "Adding SBI VVC to group: waits until all commands are complete");
```

```
await_any_completion(AXISTREAM_VVCT, 3, v_cmd_idx, NOT_LAST, 1 ms, "Adding AXI VVC#3 to group: this VVC will wait until v_cmd_idx is complete");
```

```
await_any_completion(AXISTREAM_VVCT, 4, LAST, 1 ms, "Adding AXI VVC#4 and concluding group. Will now wait for first VVC in group");
```

Limitations :

- While forming a group using await_any_completion(..NOT_LAST) calls followed by (...LAST) call, do not send other commands to the affected VVCs in between these calls.
- Multiple sequencers cannot call await_any_completion() on the same VVC instance simultaneously.

disable_log_msg()

Instruct the VVC to disable a given log ID. This call will be forwarded to the UVVM Utility Library disable_log_msg function. For more information about the disable_log_msg() method, please refer to the UVVM-Util QuickRef.

```
disable_log_msg(vvc_target, vvc_instance, msg_id, msg)
```

```
disable_log_msg(vvc_target, vvc_instance, vvc_channel, msg_id, msg)
```

e.g.

- disable_log_msg(SBI_VVCT, 1, ID_LOG_BFM, "Disabling SBI BFM logging");
 - disable_log_msg(UART_VVCT, 1, TX, ID_LOG_BFM, "Disabling UART TX BFM logging");
-

enable_log_msg()	<p>Instruct the VVC to enable a given log ID. This call will be forwarded to the UVVM Utility Library enable_log_msg function. For more information about the enable_log_msg() method, please refer to the UVVM-Util QuickRef.</p> <pre>enable_log_msg(vvc_target, vvc_instance, msg_id, msg) enable_log_msg(vvc_target, vvc_instance, vvc_channel, msg_id, msg)</pre> <p>e.g.</p> <ul style="list-style-type: none"> - enable_log_msg(SBI_VVCT, 1, ID_LOG_BFM, "Enabling SBI BFM logging"); - enable_log_msg(UART_VVCT, 1, TX, ID_LOG_BFM, "Enabling UART TX BFM logging");
flush_command_queue()	<p>Flushes the VVC command queue for the specified VVC target/channel. The procedure will log information with log ID ID_IMMEDIATE_CMD.</p> <pre>flush_command_queue(vvc_target, vvc_instance, msg) flush_command_queue(vvc_target, vvc_instance, vvc_channel, msg)</pre> <p>e.g.</p> <ul style="list-style-type: none"> - flush_command_queue(SBI_VVCT, 1, "Flushing command queue");
fetch_result()	<p>Fetches a stored result using the command index. A result is stored when using e.g. the read or receive commands in a VVC. The fetched result is available on the 'result' output. The Boolean output 'fetch_is_accepted' is used to indicate if the fetch was successful or not. A fetch can fail if e.g. the wanted_id did not have a result to store, or the wanted_id read has not yet been executed. Omitting the 'fetch_is_accepted' parameter causes the parameters to be checked automatically in the procedure. On successful fetch, a message with log ID ID_UVVM_CMD_RESULT is logged.</p> <pre>fetch_result(vvc_target, vvc_instance, wanted_id, result, msg, alert_level) fetch_result(vvc_target, vvc_instance, vvc_channel, wanted_id, result, msg, alert_level) fetch_result(vvc_target, vvc_instance, wanted_id, result, fetch_is_accepted, msg, alert_level) fetch_result(vvc_target, vvc_instance, vvc_channel, wanted_id, result, fetch_is_accepted, msg, alert_level)</pre> <p>e.g.</p> <ul style="list-style-type: none"> - fetch_result(SBI_VVCT, 1, v_cmd_idx, v_data, v_is_ok, "Fetching read-result"); <p>Full example:</p> <pre>sbi_read(SBI_VVCT, 1, C_ADDR_FIFO_GET, "Read from FIFO"); v_cmd_idx := get_last_received_cmd_idx(SBI_VVCT, 1); -- Retrieve the command index await_completion(SBI_VVCT, 1, v_cmd_idx, 100 ns, "Wait for sbi_read to finish"); fetch_result(SBI_VVCT, 1, v_cmd_idx, v_data, v_is_ok, "Fetching read-result"); check_value(v_is_ok, ERROR, "Readback OK via fetch_result()");</pre>
insert_delay()	<p>This method inserts a delay of 'delay' clock cycles or 'delay' seconds in the VVC.</p> <pre>insert_delay(vvc_target, vvc_instance, delay, msg) insert_delay(vvc_target, vvc_instance, vvc_channel, delay, msg)</pre> <p>e.g.</p> <ul style="list-style-type: none"> - insert_delay(SBI_VVCT, 1, 100, "100T delay"); - insert_delay(SBI_VVCT, 1, 50 ns, "50 ns delay");

<code>terminate_current_command()</code>	<p>This method terminates the current command in the VVC, if the currently running BFM command supports the terminate signal.</p> <p><code>terminate_current_command(vvc_target, vvc_instance, msg)</code> <code>terminate_current_command(vvc_target, vvc_instance, vvc_channel, msg)</code></p> <p>e.g.</p> <ul style="list-style-type: none">- <code>terminate_current_command(SBI_VVCT, 1, "Terminating current command");</code>
<code>terminate_all_commands()</code>	<p>This method terminates the current command in the VVC, if the currently running BFM command supports the terminate signal. The <code>terminate_all_commands()</code> procedure also flushes the VVC command queue, removing all pending commands.</p> <p><code>terminate_all_commands(vvc_target, vvc_instance, msg)</code> <code>terminate_all_commands(vvc_target, vvc_instance, vvc_channel, msg)</code></p> <p>e.g.</p> <ul style="list-style-type: none">- <code>terminate_all_commands(SBI_VVCT, 1, "Terminating all commands");</code>
<code>get_last_received_cmd_idx()</code>	<p>This method is used to get the command index of the last command received by the VVC interpreter. Necessary for getting the command index of a read for <code>fetch_result</code>.</p> <p><code>get_last_received_cmd_idx(vvc_target, vvc_instance, msg)</code> <code>get_last_received_cmd_idx(vvc_target, vvc_instance, vvc_channel, msg)</code></p> <p>e.g.</p> <ul style="list-style-type: none">- <code>get_last_received_cmd_idx(SBI_VVCT, 1);</code>
