Coordinated Infrastructure for Fault Tolerant Systems

FTB MPI Standardized Events
[Draft]

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1 MPI Events

The identifier in payload is required to be unique within the scope of the FTB events. If there is a global scope, the IDs should be globally unique, or in case of a per-job scope, the IDs need only be unique within the job.

	Fault Tolerance Backplane (FTB) Event	Thrown by	Severity
1	FTB_MPI_PROCS_DEAD	MPI Proc Mgr	ERROR

Announce that MPI processes with unique comm_world *ID* I^+ *are dead. The MPI runtime throws this notification event when it ascertains that the ranks are dead. Note that it might be outside the scope of MPI alone to determine if a "rank" is dead or simply unreachable. However, it can arrive to this judgement by getting more information from an external context indicating node or OS process failure. The ID uniquely identifies a process and the communicator it belongs to. For instance, for processes 1, 3 and 5 in comm_world A and processes 1, 2 and 23 in comm_world B, the payload would be of the form [id: {A@{1,3,5}, B@{1,2,23}}]*

Payload

id: $\{I^+\}$

2	FTB_MPI_PROCS_UNREACHABLE	MPI library	ERROR

Announce that MPI processes with unique ID I^+ *are unreachable. The MPI runtime throws this notification event when it fails to establish a contact with the processes and gives up.*

Payload

id: $\{I^+\}$

3	FTB_MPI_PROCS_COMM_ERROR	MPI library	WARN

This event is thrown to indicate an error in communicating with a remote process with id I^+ *over the (optional) interface* E^+.

Payload

id: $\{I^+\}$ [, iface: $\{E^+\}$]

4	FTB_MPI_PROCS_MIGRATED	MPI Proc Mgr	INFO

This event is thrown after migrating processes with unique ID I^+ *from the source node* **SN** *to destination node* **DN**.

Payload

id: $\{I^+\}$ [, snode: $\{SN^+\}$, dnode: $\{DN^+\}$]

5	FTB_MPI_PROCS_MIGRATE_FAIL	MPI Proc Mgr	ERROR

Indicate failure to migrate processes with unique ID $\mathbf{I}^+$*.*

Payload

id: $\{I^+\}$

6	FTB_MPI_PROCS_CKPTED	MPI Proc Mgr	INFO

Notification event thrown by the MPI runtime to indicate a successful checkpoint of processes with ID $\mathbf{I}^+$*.*

Payload

id: $\{I^+\}$

7	FTB_MPI_PROCS_CKPT_FAIL	MPI Proc Mgr	ERROR

This event is thrown by to indicate that the MPI runtime failed to checkpoint processes with ID $\mathbf{I}^+$*.*

Payload

id: $\{I^+\}$

8	FTB_MPI_PROCS_RESTARTED	MPI Proc Mgr	INFO

Notification event thrown by the MPI runtime to indicate the successful restart of previously checkpointed processes $\mathbf{I}^+$*.*

Payload

id: $\{I^+\}$

9	FTB_MPI_PROCS_RESTART_FAIL	MPI Proc Mgr	ERROR

This event is thrown to indicate that the runtime failed to restart previously checkpointed processes $\mathbf{I}^+$*.*

Payload

id: $\{I^+\}$

10	FTB_MPI_PROCS_ABORTED	MPI Proc Mgr	ERROR

This event is thrown to indicate that a MPI process with id $\mathbf{I}^+$ *has called MPI_Abort().*

Payload

id: $\{I^+\}$