# Mission Planning and Scheduling Services Outline

### Planning Request Service [PRS]

RequestInstance can be called RequenceVersion to add clarity

| Operation | MAL Pattern | Description |
| --- | --- | --- |
| SubmitRequest | REQUEST | Send Planning Request to Provider, returns the Request ID and the Request Instance ID of Planning Request created.  Returns the IDs of all created objects (ID of the Request, ID of the RquestVersion)  The status is not returned. The MonitorRequestStatus shall be used.  If an error happens no instance is created and no reporting on status is performed accordingly. |
| UpdateRequest | REQUEST | Send updated Planning Request to Provider. It results in a new Request Instance.  Returns the new RequestVersionID.  The input structure is the RequestVersion Object.  It is required to send a complete RequestVersion Object for the update, rather a “delta”.  In case of error, the error message can contain the reason for failure  In future (next version of the BB) we can consider supporting the “delta”. |
| CancelRequest | SUBMIT | Send cancellation of Planning Request to Provider.  Input the Request ID. |
| GetRequestStatus | REQUEST | Returns current state of Planning Requests. Subject to filter: All, by Domain, ...)  Returns a list of <ID of the RequestIdentity, current ID of Request Version, Status> |
| MonitorRequestStatus | PUBSUB | Based on four keys, allows subscribing to the status updates for requests  Key 1: RequestIdentity ID  Key 2: UserID  Key 3: RequestStatus  Key 4: domain  Notification Structure: RequestUpdate (As it is in the current model amended with Request Instance ID) |
| getRequest | PROGRESS | Subject to filter: All, by Domain, by Source, RequestIdentity ID  Input: filter  Returns: List<RequestID,RequestVersion,RequestStatus> |
|  |  |  |

### 6.3.2 Plan Distribution Service [PDS]

Information model to be updated to add PlanIdentity and PlanVersion (PlanVersion is a better name for PlanInstance). All PlanItems are attached to PlanVersion

| Operation | MAL Pattern | Description |
| --- | --- | --- |
| ListPlans | REQUEST | Returns a list of available PlanIDentity IDs and PlanVersion IDs and their latest Status, using PlanInformation structure  (subject to filter: All, by Domain, by Status, by Predecessor) |
| GetPlan | REQUEST | INPUT: List (PlanIdentityID, PlanVersionID (optional, if not provided, then the latest one))  OUTPUT: List<PlanID,PlanVersion(including the PlannedItems)> |
| GetPlanStatus | REQUEST | Input: List <PlanIdentity ID, PlanVersion ID (optionl, if not provided means the latestes)>  Output: List<PlanIdentity ID, Plan Status using the PlanInformation Structure (PlanVersionID to be added to it)>. |
| MonitorPlan | PUBLISH-SUBSCRIBE | Consumers register interest in a filtered set of Plans (receiving the full content of the plan) When published by the Provider, these are then forwarded to all registered Consumers. Consumers deregister to stop receiving Plans. Subscription shall be based on   * (Domain is not a key, is always in the subscribtion). * PlanIdentity ID * Originator * Plan Status (e.g. committed, ….) |
| MonitorPlanStatus | PUBLISH-SUBSCRIBE | Notifies the subscriber about the changes in plan status for the subscribed Plans (receiving just the ID and Status). Consumers deregister to stop receiving Plans. Subscription shall be based on   * PlanIdentity ID * PlanVersion ID * Originator * Plan Status (e.g. committed, ….) |
| QueryPlan | PROGRESS | Query for retrieving the plans  INPUT: Filter (PlanIdentityID,Filter on PlanInformation, Filter on EventType, Filter on ActivityType) not sure if also on EventInstance, ActivtyInstance?  OUTPUT: List<PlanID,PlanVersion(including the PlannedItems)>  This should be a separate Capability Set |

### 6.3.3 Planning Process Management Service [PMS]

To be deleted. Use M&C service to provide required interfaces for allowing automation of the planning processes.

### 6.3.4 Plan Execution Control Service [PEC]

| Operation | MAL Pattern | Description |
| --- | --- | --- |
| LoadOrMergePlan | REQUEST | Requests that the Plan Execution Provider loads or merges a specified Plan into the currently executing Plan (or Schedule).  The operation has two option flags: Load/Merge and Return Execution Status.  Load implies clearing and replacing the currently executing Plan (or Schedule) with the specified Plan.  Merge implies applying changes [relative to the predecessor Plan] to the currently executing Plan only [insertions, updates and deletions].  The provider acknowledges synchronously and, if the Return Execution Flag is set returns a final Plan Status once the Plan has been executed. |
| SubmitAction | SUBMIT | Sends Plan Execution Control directive to the Provider. The set of supported Actions is implementation specific, but is expected to include directives to Start/Stop and Pause/Resume execution of the Plan (or potentially a sub-plan by Planning Domain). |
| MonitorValue | PUB/SUB | Monitor value of Plan Execution function parameters. |
| GetValue | REQUEST | Returns the value of a Plan Execution function parameter. |
| SetValue | SUBMIT | Set the value of a Plan Execution function parameter. |
| ApplyPlanPatch |  |  |
|  |  |  |

### 6.3.4 Plan Information Management Service

| Operation | MAL Pattern | Description |
| --- | --- | --- |
| AddRequestDef AddEventDef AddActivityDef AddResourceDef AddConstraintDef  UpdateRequestDef UpdateEventDef UpdateActivityDef UpdateResourceDef UpdateConstraintDef | REQUEST  REQUEST | Manage current definitions for Planning Requests, Events, Activities and Resources (and potentially self-standing Constraints) with operations to Add, Update and Remove definitions. |
| ListRequestDefs  ListEventDefs  ListActivityDefs  ListResourceDefs | PROGRESS | Returns list of current definitions for Planning Requests (also Planning Events, Planning Activities and Planning Resources). |
| RemoveRequestDef RemoveEventDef RemoveActivityDef RemoveResourceDef RemoveConstraintDef | SUBMIT |  |

### 6.3.4 Plan Edit Service

| Operation | MAL Pattern | Description |
| --- | --- | --- |
| SubmitRequest | REQUEST | Send Planning Request to Provider, returns Occurrence ID of Planning Request created. |
| UpdateRequest | SUBMIT | Send updated Planning Request to Provider (same occurrence). |
| CancelRequest | SUBMIT | Send cancellation of Planning Request to Provider. |
| InsertActivity UpdateActivity DeleteActivity  InsertEvent UpdateEvent DeleteEvent  UpdateResource | SUBMIT | Edit the currently executing Plan (or Schedule). Operations are provided to Insert, Update and Delete occurrences of Planning Activities and Events. Note that inserting a hierarchical Activity will result in the creation of an entire tree of Activities. When deleting an Activity, deletion of any sub-tree of Activities is optional. Resources do not have occurrences, and so may only be Updated. |
| UpdatePlanStatus | REQUEST | Update of Plan status by a third party. |
| applyPlanPatch | INVOKE | Apply a plan diff |