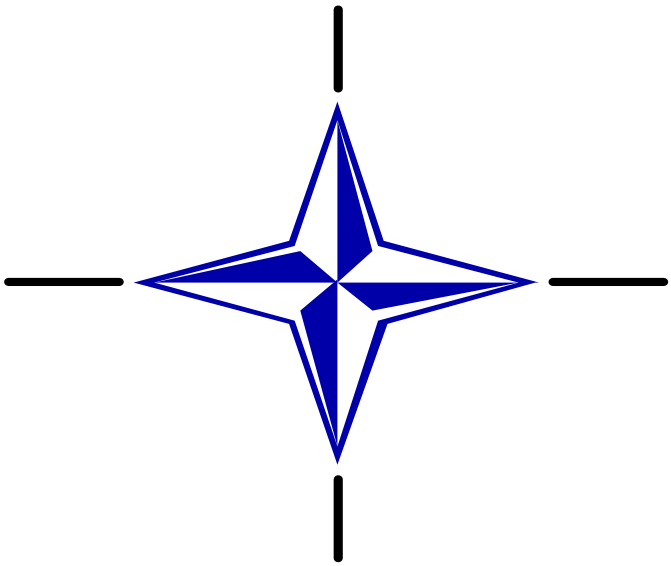

NATO ASSET TRACKING
”TO BE“ BUSINESS PROCESS MODEL

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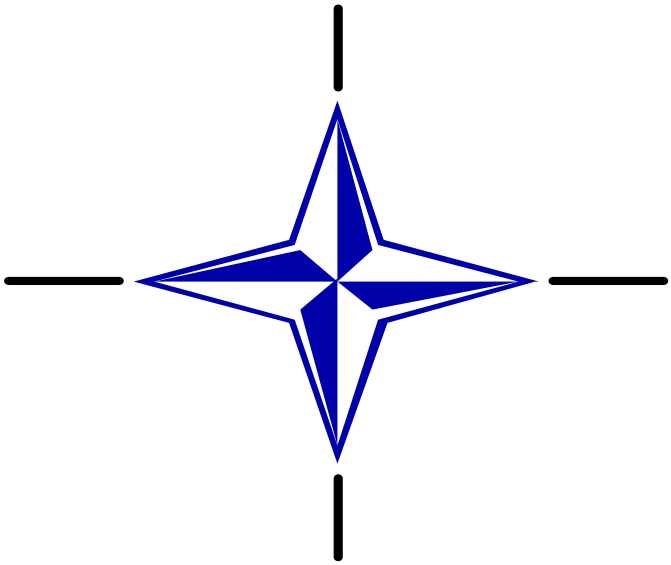

NATO ASSET TRACKING
”TO BE“ BUSINESS PROCESS MODEL

AAP-51(A)

JANUARY 2010

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NORTH ATLANTIC TREATY ORGANIZATION

NATO STANDARDIZATION AGENCY (NSA)

NATO LETTER OF PROMULGATION

21 January 2010

1. AAP-51(A) – NATO ASSET TRACKING "TO BE" BUSINESS PROCESS MODEL is a NATO/PfP UNCLASSIFIED publication. The agreement of NATO nations to use this publication is recorded in STANAG 2291.

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Vice Admiral ESP(N)
Director, NATO Standardization Agency

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RECORD OF RESERVATIONS BY NATIONS

CHAPTER	RECORD OF RESERVATIONS BY NATIONS

RECORD OF SPECIFIC RESERVATIONS

NATION	SPECIFIC RESERVATIONS

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0101 Aim of the Document

1. Identify the to-be business process for tracking assets from their commitment to an operation and transfer of authority across to NATO until the assets are uncommitted from an operation and transfer of authority back to the owning nation takes place.
2. Explore scenarios to qualify the required future business process.
3. Document the "to-be" business process using standard UML notation and diagrams.

The document is compiled in several parts.

Chapter	Title
1	Introduces the asset tracking business process model (AST BPM) providing a scope and aim, assumptions, business rules and requirements.
2	Introduces the preparation processes for operations, consignment tracking process and personnel tracking process scenarios using: UML notation, use case diagrams, activity diagrams and swim lanes.
3	Describes the scenarios in more detail using: UML notation, use case diagrams, activity diagrams and swim lanes.

0102 Asset Tracking Scope and Aim

The NATO Asset Tracking Interservice Working Group (AST WG) Policy and Terminology Panel (PTP) took on the task (SNLC V&O AC/305-d (2006)0005-coi1 dated: 6 Sep 06 objective 8.5) to establish the business process requirements that would enable asset tracking (AST) in a joint multinational environment, as prescribed in defense capability initiatives (DCI) sl 1, 4 and 14; and Bi-SC Force Proposal EG 4052 (cycle 2004 update).

The NATO nations are each represented by logisticians in the AST WG. Therefore, asset tracking is modeled from this point of view. Nations have to staff the document as a study draft and should decide which subject matter experts will review and endorse the document.

Scope

The "to be" asset tracking business process model covers three stages of an operation: deployment, sustainment, and redeployment

- During deployment and redeployment: asset tracking starts with the commitment of assets to the operation or mission and the Transfer of Authority (ToA) over the asset to NATO after the receipt of a Multinational De-Conflicted Deployment Plan (MNDDP). It ends when the assets are uncommitted from an operation and the authority is transferred back to the owning nation.
- During sustainment: asset tracking starts after an asset has been requisitioned for the use in a particular operation and will be tracked to the point of storage or use.

A nation's asset tracking process might comprise of more than one system utilizing current and emerging technologies consistent with STANAGs.

Aim

The aim of asset tracking is to provide information to the commander regarding the identity, location, quantity and limited status of assets at certain time.

The NATO asset tracking business process is an enabler for NATO asset visibility as described in STANAG 2292/ajp 4.11.

The business rules for asset tracking are described in paragraph 1.9

0103 Asset Hierarchy Used in this Model

Assets are units with profiles and holdings. Profiles are the structures of units therefore an asset can be a unit with one or more sub units. Assets include the unit's own holdings and can be personnel and / or equipment and / or items of supply. Assets are discretely identified using a variety of asset identifiers.

0104 Asset Identification

For asset identification three preconditions must be fulfilled:

- Units (or sub units) must have discrete national identifiers. (nation code + national unit identifier).
- Equipment and items of supply may have generic, discrete national identifiers and or a Unique Item Identifier (UII).
- Personnel must have unique personnel tracking identifiers (nation code + national military id).

Serialized Assets

Serialized equipment or items of supply can be marked and tracked using different ways:

- Equipment and items of supply marked with a UII for unique identification (UID), in accordance with STANAG 2290, can be tracked using this identifier.
- Equipment and items of supply that are not marked with, or that can not be identified using a UII, can be tracked using a national identifier.
- The national tracking numbers need to be defined and standardized in a Memorandum of Agreement (MOA) between the participating nation and NATO.
- Items of supply can be tracked using a GS1 global individual asset identifier (GIAI, GS1: AI 8004).
- For reusable asset such as pallets, containers (all shapes and sizes not being BIC marked containers), the global reusable asset identifier (GRAI, GS1: AI 8003) can be used.

Non Serialized Assets

Non serialized or consumable items of supply can be marked and tracked, when required, using different ways:

- The national requisition number or national delivery number that triggers the delivery of the items of supply is used to mark them discretely and track the items of supply
- For items of supply like food or other that are already marked with a Global Trade Item Number (GTIN, GS1:ai 01) extended or complemented with any of the following can be used to track the assets:
  - Batch number and / or lot number(batch/lot GS1:ai 10)
  - Production date (prod date GS1:ai 11)
  - Best before or sell by (GS1:ai 15)
  - Use by or expiry (GS1:ai 17)
  - Quantity/date/batch (GS1:ai 22)
- A NATO Stock Number (NSN) where suitable (note that the NSN only specifies form fit and function of assets and therefore is not always appropriate as a means of tracking assets).
- For specific purposes a NSN extended or complemented with any of the following can be used to track assets:
  - Manufacturer code and a part number
  - Batch number and / or lot number
  - Shelf life data
- Assets can be identified using a manufacturer code and a part number for specific items of supply where the NSN is not the proper way to identify the asset.

0105 Relationships Between Entities Used

The entity relationship diagram in Figure 1-1 shows the relationships between:

- Unit and capability
- Capability and reportable item code (RIC).
- RIC and personnel, equipment and item of supply.
- Unit and personnel, equipment and item of supply.

Entity relationship diagrams are further explained in Annex A.

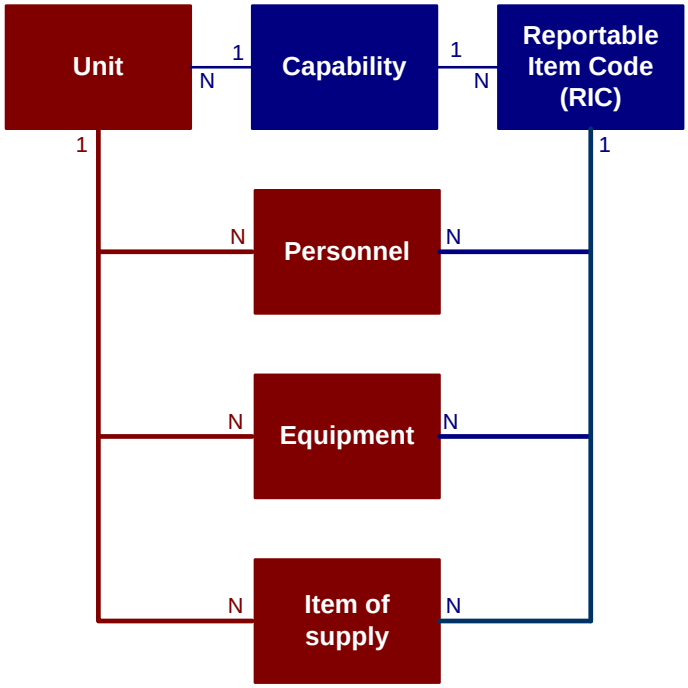


Figure 1-1 Entity Relationship Diagram 1

Unit	A military element whose structure is prescribed by a competent authority.
Capability	A capability is something a military commander can use to perform certain tasks within a military operation.
Reportable Item Code (RIC)	A RIC code is a code assigned to individual assets (equipment, materiel, supplies and personnel) to categorize them according to their main characteristics. It is used to define operational capabilities for NATO's user community needs. In a RIC each character identifies a hierarchical level in the tree structures. The items are the leaves of the tree structure and are identified by all six alphanumerical characters. It is a code classifying all equipment, supplies and personnel as required by the user communities in NATO.
Personnel	Personnel are soldiers or civilians who are a part of a unit or force committed to a NATO operation. Personnel must be discretely identifiable.
Equipment	All non-expendable items needed to outfit an individual or organization
Item of supply	Items of supply can be pieces of equipment, spare parts, food, water, fuel, lubricants needed to keep equipment working, keep personnel running or heal personnel, or provide the ability to repair equipment. Items of supply must be identifiable using a NSN or other identifier as described in paragraph 104.

The entity relationship diagram in figure 1-2 shows the relationships between:

- Deployment order and personnel, equipment and item of supply capability and reportable item code.
- Requisition and delivery and equipment and item of supply.
- Transport package and personnel, equipment and item of supply.

- Transport package and consignment and shipment
- Means of transport and shipment and transport package.

Entity relationship diagrams are further explained in Annex A.

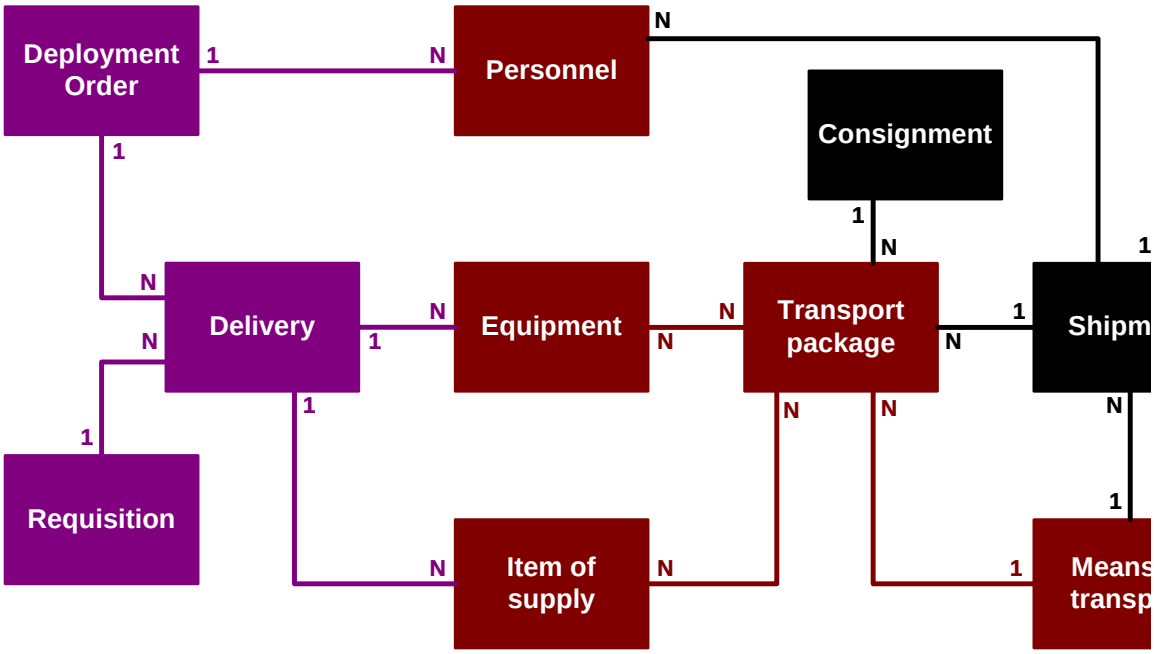


Figure 1-2 Entity Relationship Diagram 2

Means of transport	Vehicles used for moving people or goods from one place to another.
Transport package	A transport package is a physical grouping of one or more assets packed for transportation to be moved from a consignor to an ultimate consignee or group of transport packages packed into a new transport package to be moved from a consignor to a consignee and specified by a unique serial shipping container code (SSCC). Transport packages can physically be consolidated into transport packages identified by a new SSCC.
Consignment	A consignment **is a logical grouping of** transport packages **intended to be delivered as a whole** from a consignor to an ultimate consignee and specified by a unique consignment identifier (consignment number) assigned by the consignor. A consignment is not a physical grouping of assets.
Shipment	A shipment is **another logical grouping of** transport packages for transport purposes to be moved on a leg of a route and specified by a unique shipment identifier (shipment number) **assigned by a military or commercial shipper or freight forwarder**. A transport package may be reconfigured into other shipments along the route towards the theatre of operations.
Shipment of personnel	A shipment of personnel is a logical grouping of one or more persons (military or civilian) for transport purposes to be moved on a leg of a route and specified by a unique shipment identifier (shipment number) **assigned by a military or commercial personnel shipper.**
Deployment order	A deployment order is the order given by a nation HQ to a certain unit that is to be deployed to the theatre of operations.
Requisition	A requisition is a set of assets required by a unit at a certain moment in time.
Delivery	A delivery is a set of assets to be delivered to a unit at a required delivery date.

0106 Asset Tracking Objective

The objective of the asset tracking capability is to provide event-driven identity, limited status and location information for assets committed to NATO operations in near real time, in a multinational environment. Consignment tracking is a key enabler to reach this objective, therefore:

- Consignment tracking should provide event-driven identity, limited status, location information for transport packages and shipments moving towards or from the theatre of operations for NATO operations, in near real time, in a multinational environment.
- Asset tracking includes limited personnel tracking.
- Personnel tracking will provide event-driven identity, limited status and location information of personnel committed to NATO operations in near real time, in a multinational environment.

Note: Limited status is defined as a set of statuses limited to transport related status and available or not available statuses. Specific details are given in paragraphs 308 and 309 where status is further sub-divided into physical status and transport status.

0107 Asset Tracking Assumptions

1. An asset tracking capability tracks nations or NATO assets that are committed to NATO operations. The national inventory, maintenance and medical systems will provide data, where required, to contribute to NATO asset visibility and they will not form a part of NATO asset tracking.
2. Personnel tracking tracks nations or NATO personnel that are committed to a NATO operation, from the moment they start to travel towards the theatre of operations until their return to a designated place after participation in the operation.
3. Assets can be tracked individually using an asset id or as part of transport packages using a transport package ID.
4. NATO personnel tracking will be achieved using a discrete identifier and will not include detailed information or personal data.
5. Assets can physically carry or contain other assets. Transport packages or shipments will be transported by means of transportation (e.g. Truck, container, plane, ship or train or reusable assets such as pallets and carts). It should be possible to track the means of transportation and thereby its contents (transport packages or shipments).
6. All contributing nations and NATO should be capable of capturing relevant asset tracking or consignment tracking data.
7. The nations should be capable of exchanging or sharing asset tracking or consignment tracking data with NATO, other nations and commercial shippers. Where electronic data exchange is used this should be done in accordance with STANAG 2185.
8. Communication and information infrastructure requirements including classification will be in accordance with STANAG 2183.
9. The license plate information of assets and consignments is assumed to be unclassified.
10. Transport package and asset details are expected to be classified.
11. The NATO asset tracking business process model is not intended to impose mandatory system requirements on nations.
12. The asset tracking business process will be operated within a multinational joint environment that relies on both military and commercial shippers.
13. A standardized NATO priority system for movements of assets will be used within a multinational joint environment.

0108 Asset Tracking Business Rules

1. Nations are to provide asset information for those assets identified on the reportable item list (RIL) when required by the NATO commander.

2. The owner of an asset, a transport package, or a shipment is to exchange information related to transactions (such as create, despatch, receive) undertaken for an asset, a transport package or a shipment. The owner reports the progress of an asset, transport package or shipment towards and from the theatre of operations.
3. Assets are tracked using asset identifiers, asset details can be obtained from the asset owner if the asset owner has agreed to share asset details in a MOU.
4. Assets are units with profiles and holdings. Profiles are the structures of units therefore an asset can be a unit with one or more sub units. The holdings of a unit can be personnel and / or equipment and / or items of supply.
5. During deployment and redeployment: asset tracking starts with the commitment of assets to the operation or mission and the transfer of authority over the asset to NATO after the receipt of a multinational de-conflicted deployment plan (MNDDP). It ends when the assets are uncommitted from an operation and the authority is transferred back to the owning nation.
6. During sustainment: asset tracking starts after an asset has been requisitioned for the use in a particular operation and will be tracked to the point of storage or use.
7. During the operation assets are not tracked whilst they are involved in tactical engagements.
8. Asset tracking of forces and units will be achieved by physically tracking the individual assets that are part of that unit or force. The forces and units themselves are not physically tracked.
9. Tracking can be done manually or using a variety of automatic identification technology (AIT). Physical tracking will only happen when the asset is moving. Asset tracking provides the last known reported location of an asset.
10. Tracking of assets starts with the despatch of assets from a nation’s location to or from the theatre of operations. It continues with the movement of assets over the planned routes to and from the theatre of operations.
11. Personnel are tracked as a part of shipment of personnel when they move to and from unit locations in to the theatre of operations as a result of deployment, relocation or redeployment. The tracking of personnel is suspended when the personnel are performing their tasks within the unit. Personnel are not tracked individually but as part of a shipment of personnel.
12. Tracking of consumable and non serialized assets ends after the delivery of the asset to the ultimate consignee.
13. Assets are identified by asset identifiers.
14. Assets are typically tracked by being associated with one or more transport packages or shipments.
15. Nations or NATO will be responsible for the provision of detailed information on respective assets and possible hierarchy. Details pertaining to NATO owned assets normally will reside with NATO. Details pertaining to national assets normally will reside with the nation but will be available to the NATO commander as agreed by nations concerned. When a nation consents, the national asset details also be duplicated within a NATO system.
16. Asset tracking identifiers are not expected to satisfy the requirements for cargo handling documentation, e.g. HAZMAT and customs documentation.
17. When a nation captures data on other nation’s assets it will exchange data with the owning nation. If this is done electronically using the NATO asset data exchange service then it shall be in accordance with STANAG 2185.
18. Owning nations will (as agreed by the nations and NATO) send, when requested, information to NATO on their own committed assets.
19. Asset tracking data will be time stamped to ensure proper sequencing of data. Dates and times will be entered in Zulu time.
20. Equipment and items of supply should be sealed, packed and marked correctly according to the proper national and international laws, rules and regulations for handling and shipping goods.
21. If a nation acts as a logistic lead nation (LLN) or logistics role-specialization nation (LRSN) in a multinational operation, it must follow the NATO asset tracking business process.

22. Equipment or items of supply are consigment tracked using SSCC's. The lowest level of tracking in consignment tracking is a transport package marked with an SSCC.

    Therefore SSCC's labels should be on:

    a. Equipment or items of supply that are not packed (containing other equipment or items of supply or not)
    b. A transport package containing one or more pieces of equipment or items of supply.
    c. A transport package containing parts of pieces of equipment or items of supply.

23. A transport package that has arrived at the ultimate consignee's location is to be closed. The SSCC is not to be used again. The transport package records are to be closed as well.
24. The information exchange service will provide very limited or preferably no business logic. It will only distribute information and will not be capable of interpreting information.

0109 Asset Tracking Requirements

The commander of an operation is to be provided with asset tracking information to support his decision making process.

To provide for seamless asset tracking in a multinational environment that relies on both military and commercial supply and distribution systems, the following processes are required:

1. Capturing and distributing identification, receipt and despatch, location, limited status information for each asset.
2. Capturing and distributing identification, receipt and despatch, location, limited status information for each transport package.
3. Distributing identification, receipt and despatch, location, limited status information to the asset's owner and the NATO consignment / asset tracking system.

0110 AIT Media

A non exhaustive list of AIT media that could be used according to the asset tracking business process model is as follows:

1. Consignment tracking
    - NATO shipping label according to STANAG 2494
    - RFID tags according to STANAG 2233
2. Asset tracking
    - UID data matrix label according to STANAG 2290
    - UID PDF 417 label according to STANAG 4281
    - GS1 GTIN (linear barcode) according to STANAG 2495
    - GS1 GTIN (linear barcode) according to STANAG 2495 complemented with:
        - Batch number and / or lot number(batch/lot GS1:ai 10)
        - Production date (prod date GS1:ai 11)
        - Best before or sell by (GS1:ai 15)
        - Use by or expiry (GS1:ai 17)
        - Qty/date/batch (GS1:ai 22)

3. A paper shipping manifest/transportation document (packing list) or a digital version of it on CD or DVD according to 2495 for a:
    - Transport package (packing list identified by SSCC using the Application Identifier (AI) of 00. The packing list information can also be stored in the pdf417 barcode on the optional NATO shipping label according to STANAG 2494 or in the memory of a RFID Tag according to STANAG 2233).

- Consignment (logical grouping of one or more transport packages or consignments identified by GS1 consignment number AI: 401 and shipping manifest/transportation document identified by the same GS1 consignment number AI: 401).
- Shipment (logical grouping of transport packages intended to be sent as a whole identified by GS1 shipment number AI: 402 assigned by a freight forwarder. Manifest/transportation document identified by the same GS1 shipment number AI: 402).

4. Passive RFID for marking of packages containing assets according to STANAG 4281.
5. A national alternative to any of the above mentioned.

Chapter 2
ASSET TRACKING SCENARIO'S

0201 Introduction to Asset Tracking Scenario's

This chapter describes the typical consignment tracking and personnel tracking scenarios.

The scenarios are not intended to describe the tracking in detail but identify the minimum set of activities needed to provide relevant and useful information.

The chapter is divided in three parts:

- Preparation for an operation
- Consignment tracking
- Personnel tracking

Chapter 3 specifies more activity diagrams to further support the asset tracking scenarios.

0202 Preparation for an Operation

The diagram depicts the activity diagrams that are needed to create a common set of keys that will allow access to all the information that can be gathered by the consignment tracking and or personnel tracking scenario's. These activity diagrams also provide the information that is to be shared before the consignment tracking and personnel tracking scenarios are started.

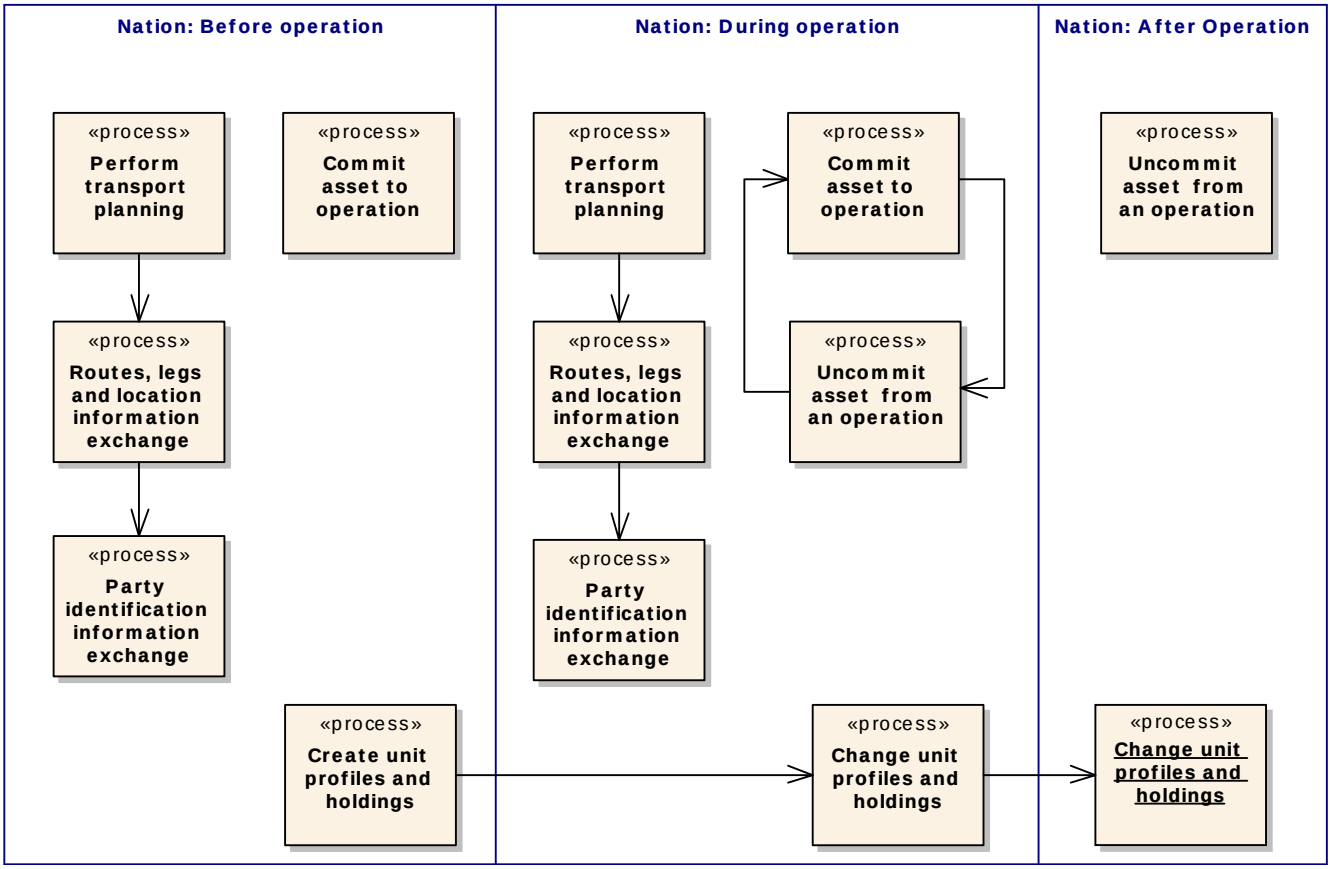


Figure 2-1 Preparation Processes

This diagram does not show any start or finish because the processes depicted in this diagram all are continuous during an operation.

0203 Routes, Legs and Location

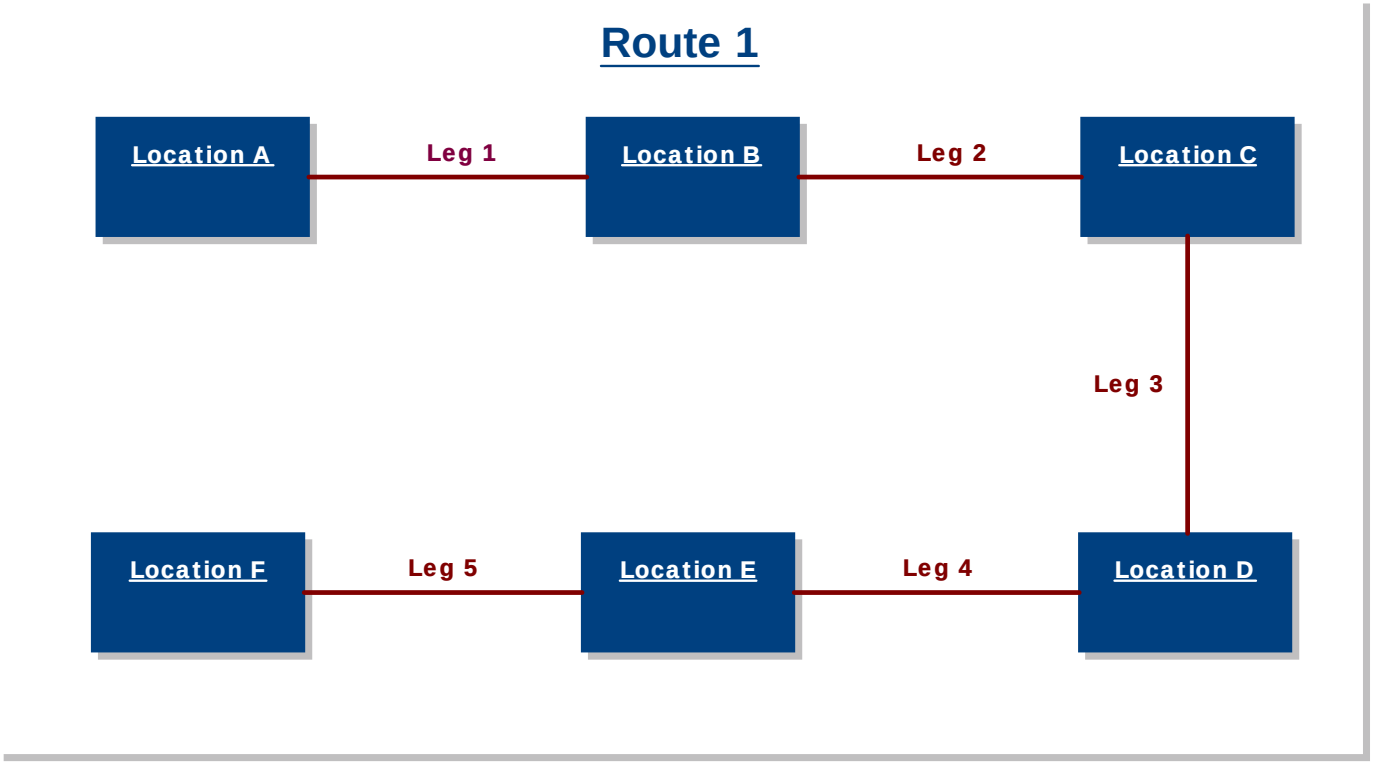


Figure 2-2 Routes, Legs and Locations

In order to be able to improve the performance of a nation's supply chain it is recommended to employ routes. Routes consist of legs, legs are two locations connected by a means of transport.

Routes are built based on the total requirement for transport to and from a theatre of operations. Routes will enable improved national and NATO performance measurement within the NATO supply chain. Employing formal routes will enable improved predictions for estimated times of arrival and departure (i.e. ETA, ETD).

0204 Calculating Route and Leg Performance

The performance of a route and a leg of a route are to be based on the following logic:

Time on Route (ToR) is the time it takes for a transport package to arrive at the final destination of the route.

The actual time en route is composed of times on leg (ToL). The sum of the ToL's composes the ToR. The example route in this paragraph has 5 legs, therefore the ToR of this route is calculated by:

ToR = ToL 1 + ToL 2 + ToL 3 + ToL 4 + ToL 5

An instance of a time on leg is calculated by the difference between an actual time of departure (ATD) and an actual time of arrival (ATA).

ToL = ATA – ATD (previous location)

The time on leg is calculated by taking the mean average time for a certain amount of transports over a leg.

An estimated time of arrival can therefore be calculated as the sum of an estimated time of departure plus a time on leg (ToL) i.e.

ETA = ETD (previous location) + ToL.

Important Note: At the beginning of a route or when goods are moving on a route, a combination of actual times and estimated time at location must also be taken into consideration.

0205 Actors and Roles and Locations

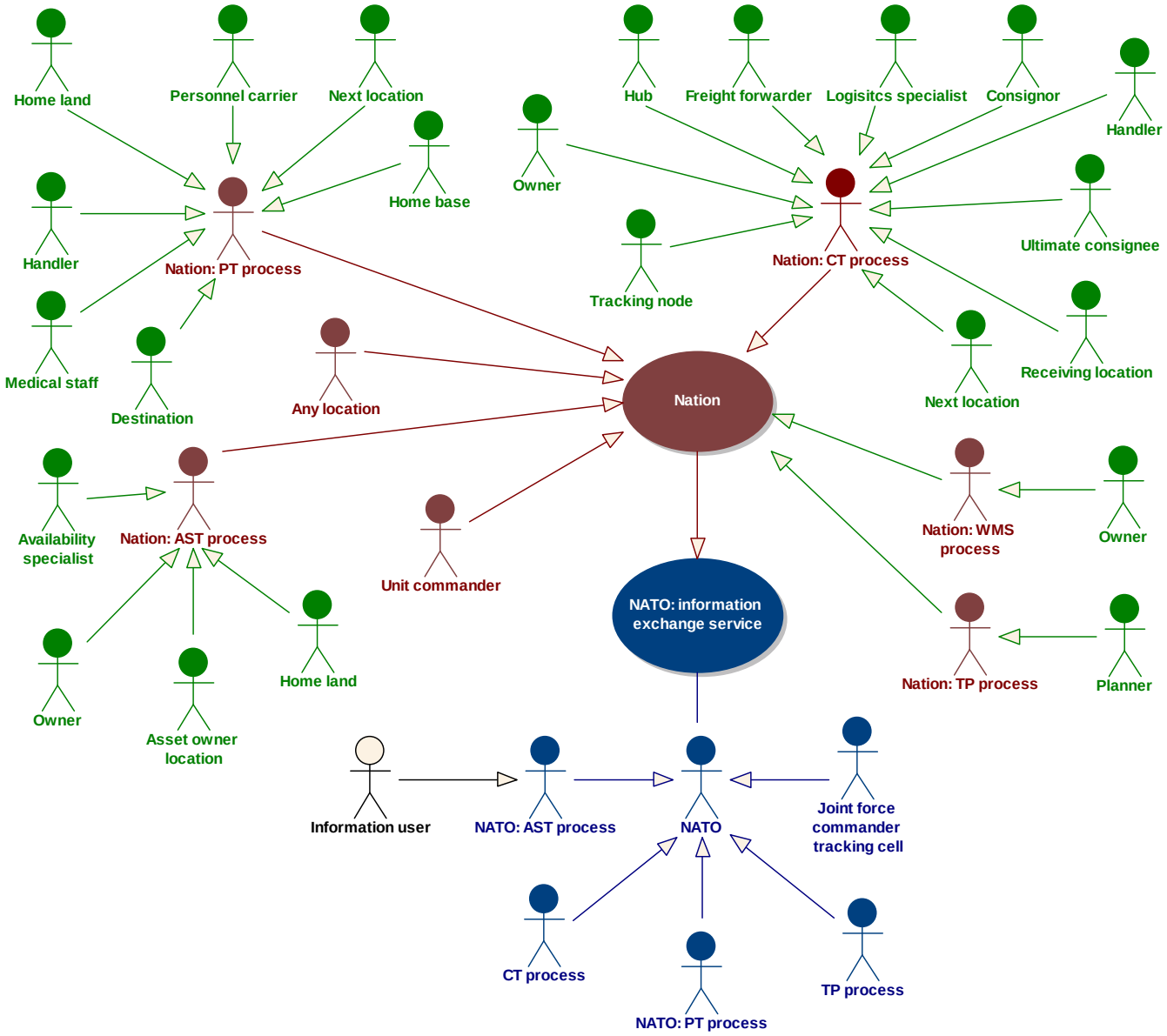


Figure 2-3 Actors and Roles and Locations

Process		Description
Actor		
	Role	
Nation		
	Any location	Any location in the theatre of operations or the home land of a participating nation
	Unit commander	The commander of a nation contribution to an operation (all units)
NATO		
	NATO IE service (IE = information exchange)	A NATO provided and operated information exchange service capable of routing and distributing asset tracking information as instructed by message content, between nations systems and NATO (AST, CT or PT) systems.
Nation Personnel Tracking (PT) process		**National personnel tracking process**
	Homeland	The homeland of personnel
	Personnel carrier	A generic actor with the ability to ship personnel

Process		Description
Actor		
	Role	
	Next location	The next location of shipment of personnel
	Home base	The home base of a unit of a participating nation
	Handler	A generic actor handling shipments of personnel
	Medical staff	A generic actor representing all medical staff that have the ability to determine fitness for duty
	Destination	A destination of a shipment of personnel
Nation Consignment Tracking (CT) process		**National consignment tracking process**
	Owner	The owner of an asset (nation or unit)
	Hub	A generic actor representing a location where several good flows or flows of personnel are grouped and shipped
	Freight forwarder	A generic actor with the ability to forward transport packages and shipments
	Logistics specialist	A generic actor representing all logistics staff that have the ability to determine availability of equipment or items of supply
	Consignor	A generic actor handling transport packages or shipment at a certain location
	Handler	A generic actor handling transport package or shipment
	Ultimate consignee	The ultimate destination of transport package
	Receiving location	A location that receives shipment or transport packages
	Next location	The next location of transport package or shipment
	Tracking node	A generic actor with the ability to register transport packages passing the location of the actor
Nation Warehouse Management System (WMS) process		**National warehouse management system**
	Owner	The owner of an asset (nation or unit)
Nation Transport Planning (TP) process		**National transport planning process**
	Planner	A generic actor capable of planning transports or creating a transport plan for a nation
Nation Asset Tracking (AST) process		**National asset tracking process**
	Availability specialist	A generic actor representing all logistics staff that have the ability to determine availability of equipment or items of supply
	Homeland	The homeland of personnel
	Asset owner location	The location of the owner of an asset (unit location)
	Owner	The owner of an asset (nation or unit)
NATO		
	JFCTC	Joint force commander tracking cell. The staff element of a NATO commander's staff responsible for tracking assets.
	NATO AST process	The overarching NATO asset tracking process. All information gathered from all participating nations concerning their assets is kept here.
	Information user	A generic actor representing anybody with an interest in the information gathered in this business process.
	NATO CT process	The overarching NATO consignment tracking process. All information gathered from all participating nations concerning transport packages and shipments is received and held within this process.
	NATO PT process	The overarching NATO personnel tracking process. All information gathered from all participating nations concerning personnel is received and held within this process.

Process		Description
Actor		
	Role	
	NATO: TP process	A generic actor capable of planning transports or creating a transport plan for NATO.

0206 Introduction to the Consignment Tracking Scenario

Equipment or items of supply can and will be tracked as part of transport packages using consignment tacking business process.

Consignment tracking is concerned with tracking all transport packages, until they are 'broken down' and the contents either are delivered to the ordering organization or re-manifested for further transportation. If re-manifested, a new transport package is created and tracked. Within the NATO environment, nations may partner in consolidating transport packages in order to reduce shipping costs. Consequently, a hierarchy of transport packages may develop where transport packages are contained in consignments or shipments as depicted in figure 1-1 and 1-2.

If a nation uses Direct Vendor Deliveries (DVD) using commercial carriers such as FEDEX, DHL, etc., the global carrier should also employ this hierarchy. It then becomes possible for nations to exchange information with commercial carrier's tracking systems.

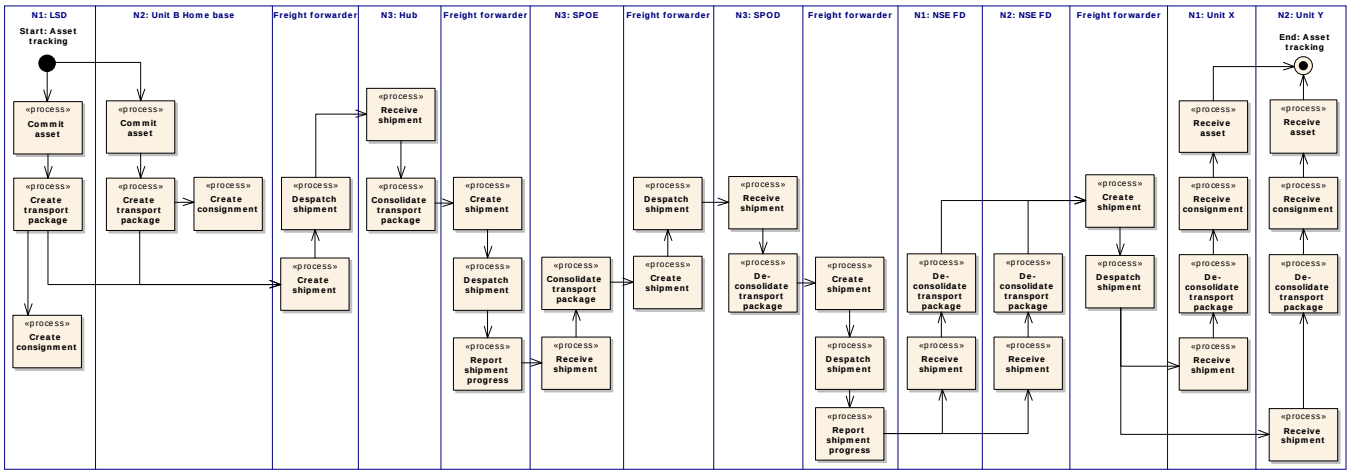


Figure 2-4 Consignment Tracking Scenario

Figure 2- 4 depicts the typical set of activities needed to track assets from and to the theatre of operations.

Figures 2-7 to 2-13 show how assets are packed and physically and logically grouped while moving from and to locations in the theatre of operations as a result of requisition or delivery or movement orders.

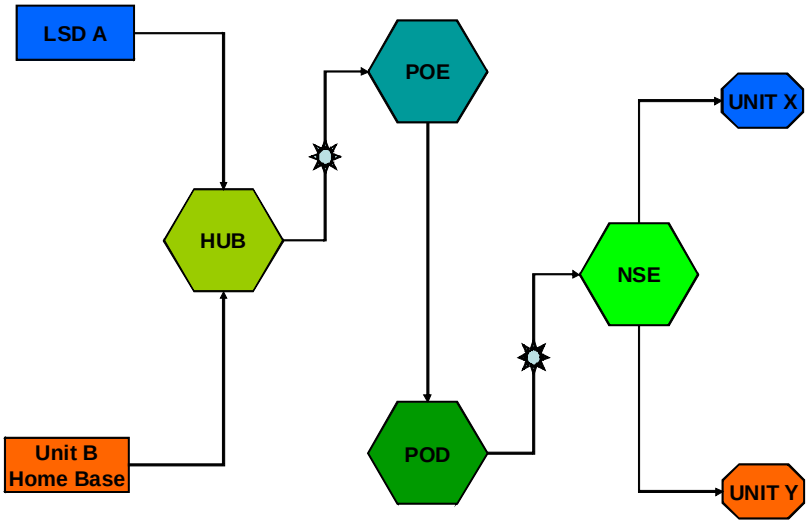


Figure 2-5 Asset Tracking Scenario Routes and Legs

Logistic supply depots A and B are going to deliver assets to the units A and B. The transportation is done via two different routes.

Route 1 has five legs:	Route 2 has five legs:
Leg 1: LSD A to Hub	Leg 1: LSD B to Hub
Leg 2: Hub to POE	Leg 2: Hub to POE
Leg 3: POE to POD	Leg 3: POE to POD
Leg 4: POD to NSE	Leg 4: POD to NSE
Leg 5: NSE to Unit A	Leg 5: NSE to Unit B

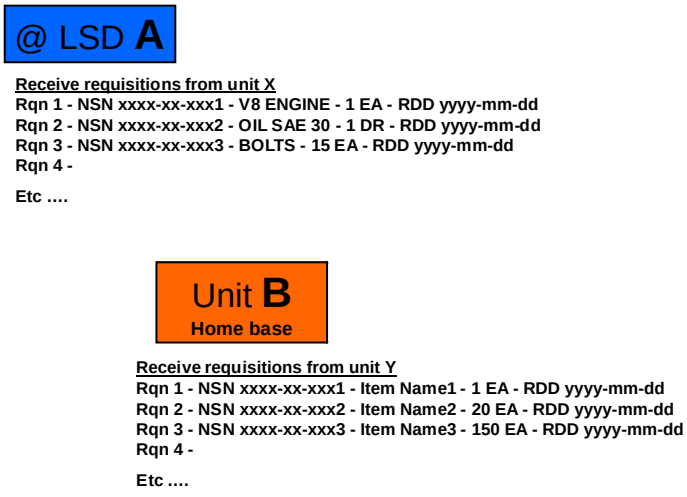


Figure 2-6 Requisitions

Unit A has made a requisition for Assets 1 to 6. Unit B has made a requisition for Assets 7 to 9.

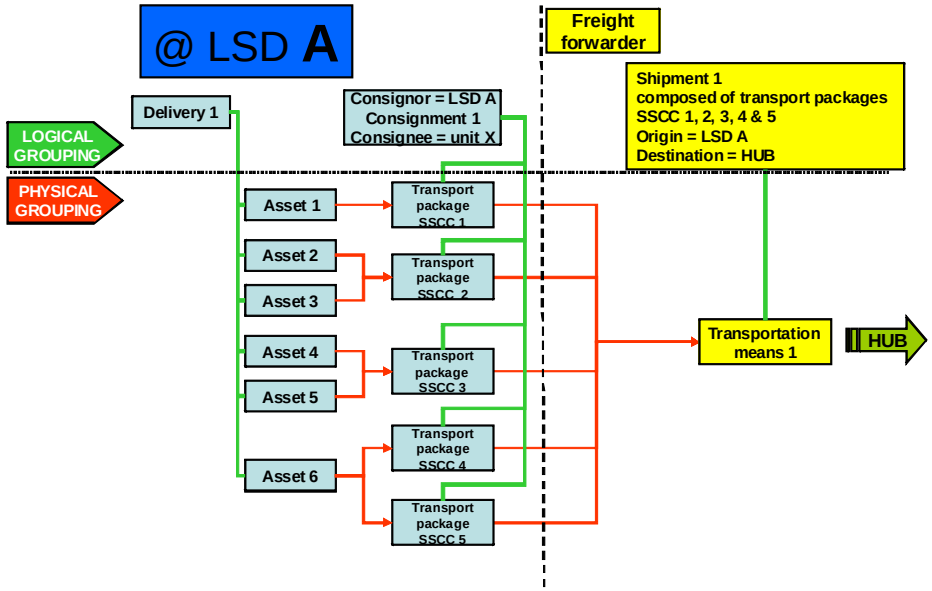


Figure 2-7 Actions at Location LSD A

1. LSD A has picked Asset 1 to 6 from delivery 1. The requisition is an attribute of delivery 1.
2. Asset 1 is packed in Transport Package SSCC 1. Assets 2 and 3 are packed in Transport Package SSCC 2.
   Assets 4 and 5 are packed in Transport Package SSCC 3. Asset 6 is packed in two Transport Packages SSCC's 4 and 5
3. Consignment 1 contains SSCC's 1 – 5. The origin is LSD A. The ultimate consignee is Unit A.
4. Shipment 1 contains SSCC 1-5. The origin is LSD A. The destination is the Hub. A Freight Forwarder transports Shipment 1 to the Hub using Transportation Means 1.

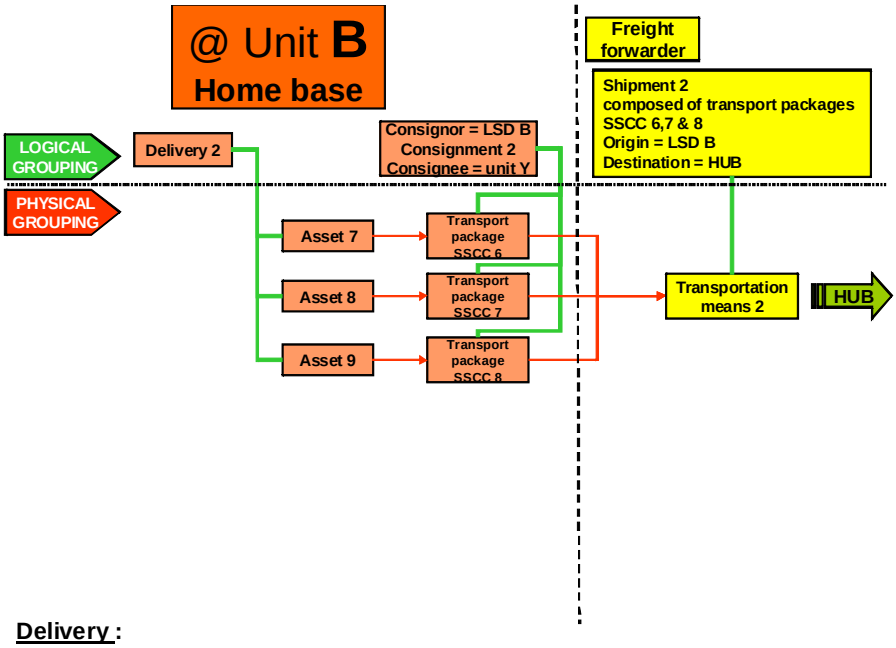


Figure 2-8 Actions at location Unit B Home base

1. Unit B Home base has picked Asset 7 to 9 from Delivery 2. The requisition is a reference of Delivery 2.
2. Asset 7 is packed in Transport Package SSCC 6 Asset 8 is packed in Transport Package SSCC 7. Asset 9 is packed in Transport Package SSCC 8.
3. Consignment 2 contains SSCC's 6 – 8. The origin is Unit B Home base. The ultimate consignee is Unit B.
4. Shipment 2 contains SSCC 6 - 8. The origin is Unit B Home base. The destination is the Hub.
5. A Freight Forwarder transports Shipment 2 to the Hub using Transportation Means 2.

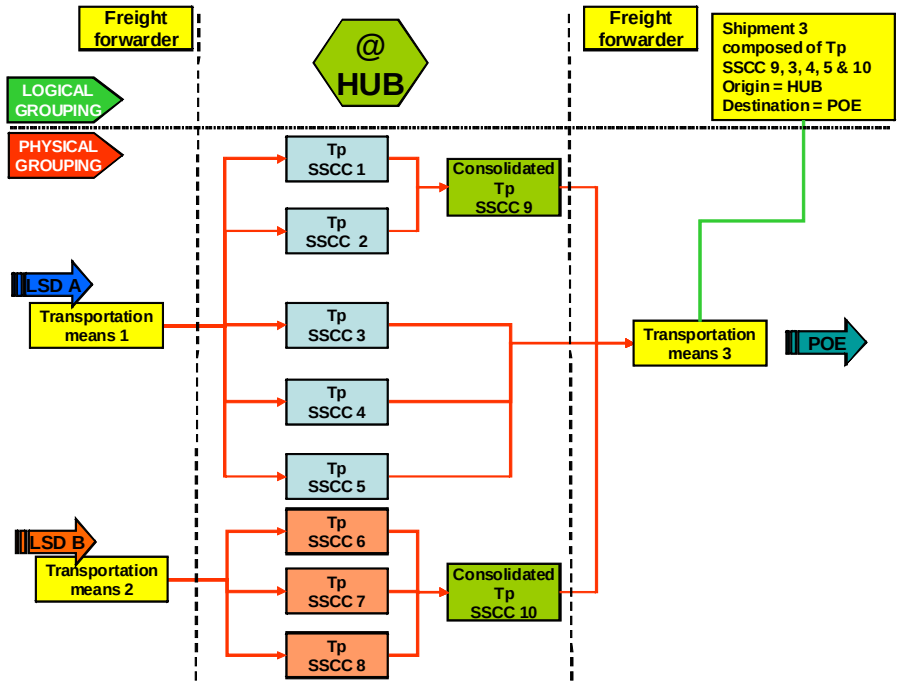


Figure 2-9 Actions at Location Hub

1. Transportation means 1 arrives at the Hub. Transport Packages SSCC 1 – 5 are unloaded.
2. Transport Packages 1 & 2 are consolidated into a consolidated Transport Package with SSCC 9.
3. Transportation Means 2 arrives at the Hub. Transport Packages SSCC 6 – 8 are unloaded. Transport Packages 6 - 8 are consolidated into consolidated Transport Package SSCC 10.
4. Shipment 3 contains Transport Packages SSCC 3, 4, 5, 9 and 10. The origin is the Hub. The destination is the Point of Embarkation (POE). A Freight Forwarder transports Shipment 3 to the POE using Transportation Means 3.

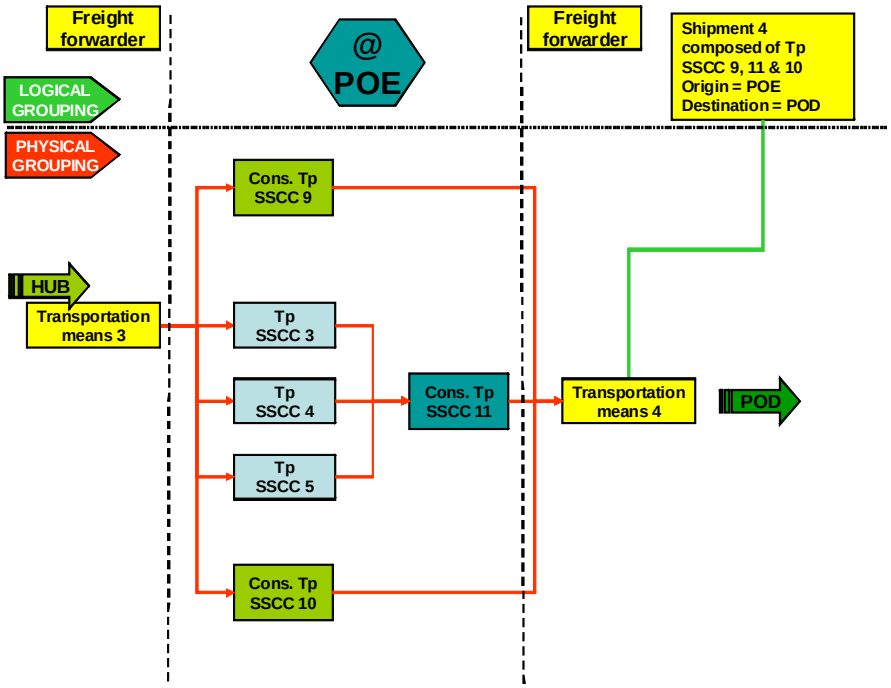


Figure 2-10 Actions at location POE

1. Transportation Means 3 arrives at the POE. Transport Packages SSCC 3, 4, 5, 9 and 10 are unloaded. Transport Packages 3, 4 and 5 are consolidated into consolidated Transport Package SSCC 11.
2. Shipment 4 contains Transport Packages SSCC 9, 10 and 11. The origin is the POE. The destination is the Point of Debarkation (POD). A Freight Forwarder transports Shipment 4 to the POE using Transportation Means 4.

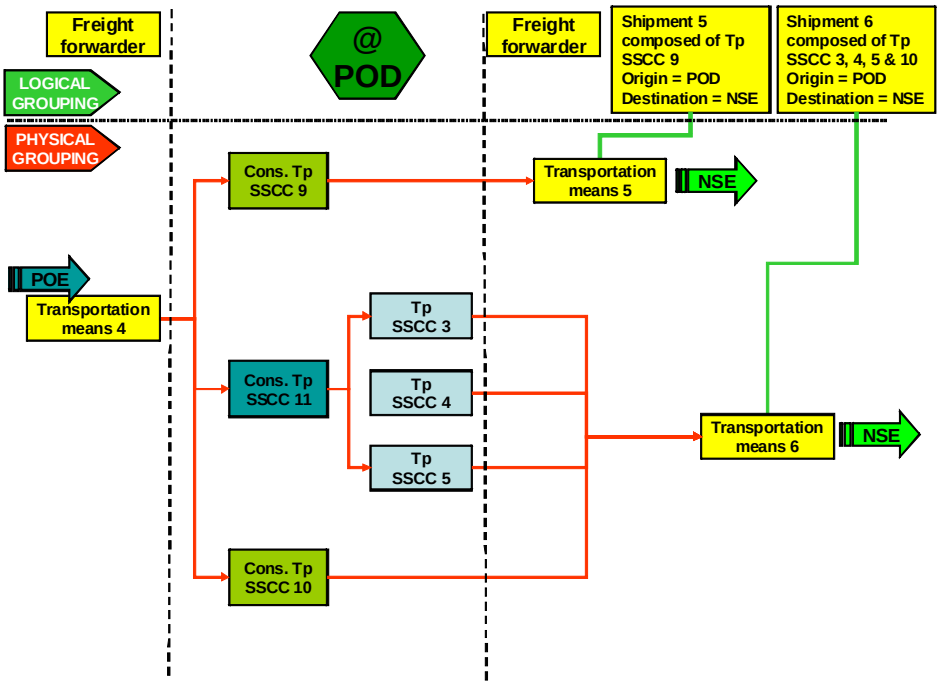


Figure 2-11 Actions at Location POD

1. Transportation Means 4 arrives at the POD. Transport Packages SSCC 9, 10 and 11 are unloaded. Transport Package 11 is deconsolidated into Transport Packages 3, 4 and 5.

2. Shipment 5 contains Transport Package SSCC 9. The origin is the POD. The destination is the National Support Element (NSE). A Freight Forwarder transports Shipment 5 to the NSE using Transportation Means 5.
3. Shipment 6 contains Transport Packages SSCC 3, 4 and 5, and 10. The origin is the POD. The destination is the NSE. A Freight Forwarder transports Shipment 6 to the POE using Transportation Means 6.

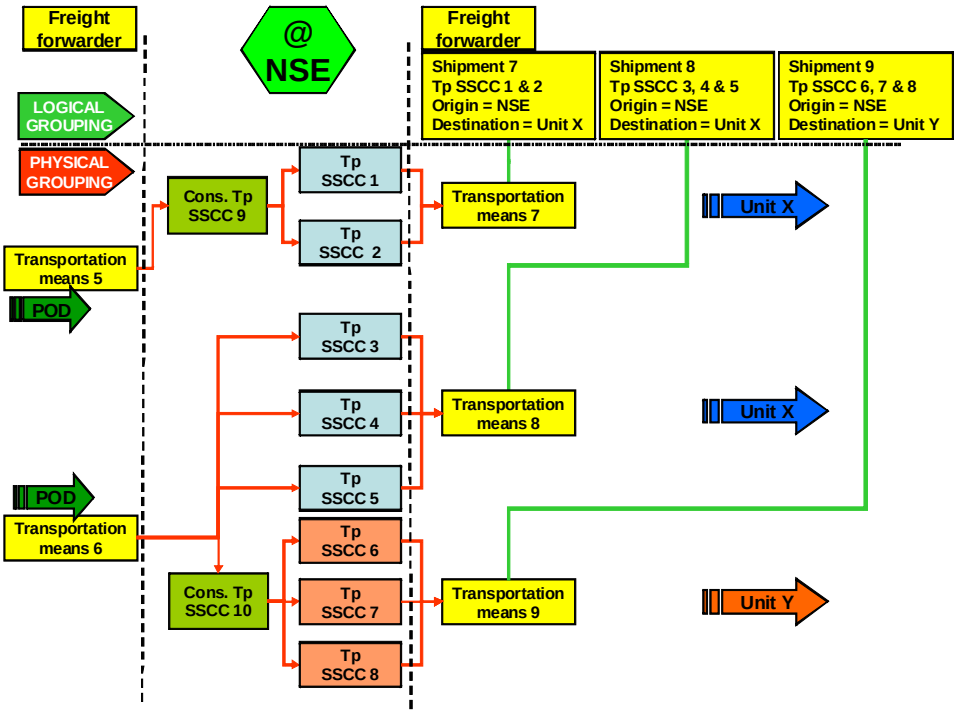


Figure 2-12 Actions at Location NSE

1. Transportation Means 5 arrives at the NSE. Transport Package SSCC 9 is unloaded.
2. Transport Package 9 is deconsolidated into Transport Packages 1 and 2.
3. Transportation Means 6 arrives at the NSE. Transport Packages SSCC 3, 4, 5, and 10 are unloaded.
4. Transport Package 10 is deconsolidated into Transport Packages 6, 7 and 8.
5. Shipment 7 contains Transport Packages SSCC 1 and 2. The origin is the NSE. The destination is Unit A. A Freight Forwarder transports Shipment 7 to Unit A using Transportation Means 7
6. Shipment 8 contains Transport Packages SSCC 3, 4 and 5. The origin is the NSE. The destination is Unit A. A Freight Forwarder transports Shipment 8 to Unit A using Transportation Means 8.
7. Shipment 9 contains Transport Packages SSCC 6, 7 and 8. The origin is the NSE. The destination is Unit B. A Freight Forwarder transports Shipment 9 to Unit B using Transportation Means 9.

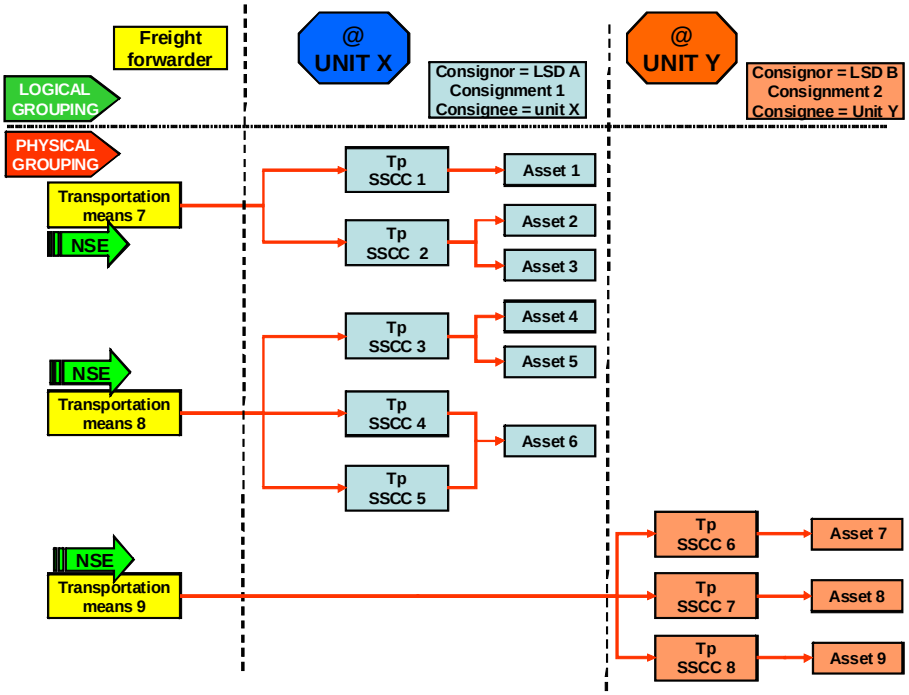


Figure 2-13 Actions at Unit Locations

1. Transportation Means 7 arrives at Unit A. Transport Package SSCC 1 and 2 are unloaded. Assets 1, 2 and 3 are unpacked. Assets 1, 2 and 3 are received. Consignment 1 is now partially delivered at the ultimate consignee (Unit A). Delivery 1 is partially fulfilled.
2. Transportation Means 8 arrives at Unit A. Transport Package SSCC 3, 4 and 5 are unloaded. Assets 4, 5 and 6 are unpacked. Assets 4, 5 and 6 are received. Consignment 1 is now completely delivered at the ultimate consignee (Unit A). Delivery 1 is made. Requisition 1 is fulfilled.
3. Transportation Means 9 arrives at Unit B. Transport Package SSCC 6, 7 and 8 are unloaded. Assets 7, 8 and 9 are unpacked. Assets 7, 8 and 9 are received. Consignment 2 is now completely delivered at the ultimate consignee (Unit B). Delivery 2 is made, requisition 2 is fulfilled.

0207 Introduction into the Personnel Tracking Scenario

Personnel can and will be tracked as part of shipments of personnel using a personnel tracking business process which is similar to that used for other assets.

All Personnel will be tracked until they reach their final destination (unit locations) in the theatre of operations.

Within the NATO environment, nations may share personnel transport in order to reduce shipping costs. Consequently, shipments of personnel can contain other nation's personnel.

If a nation uses commercial carriers such as commercial airlines, the global carrier should also employ this scenario and its sub processes. It then becomes possible for nations to exchange information with commercial carrier's tracking systems.

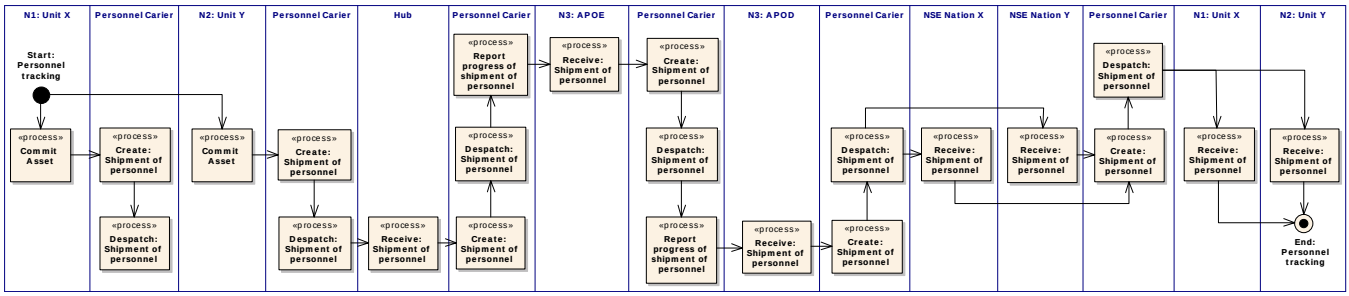


Figure 2-14 Personnel tracking scenario

The following figures (2-15 to 2-24) show how personnel are physically and logically grouped while being transported from and to locations in the theatre of operations as a result of a deployment order.

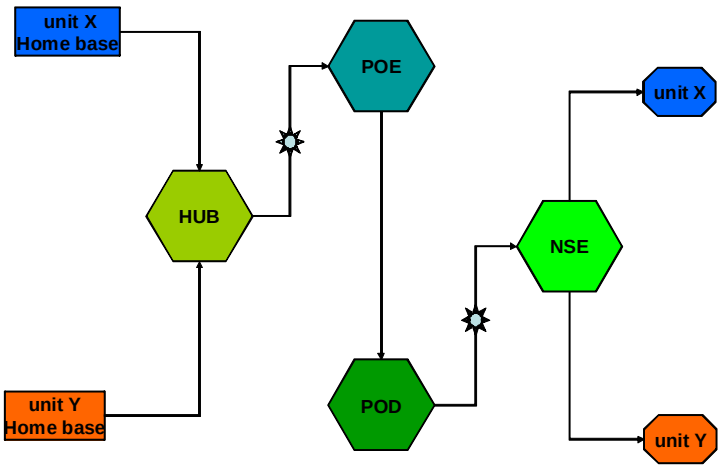
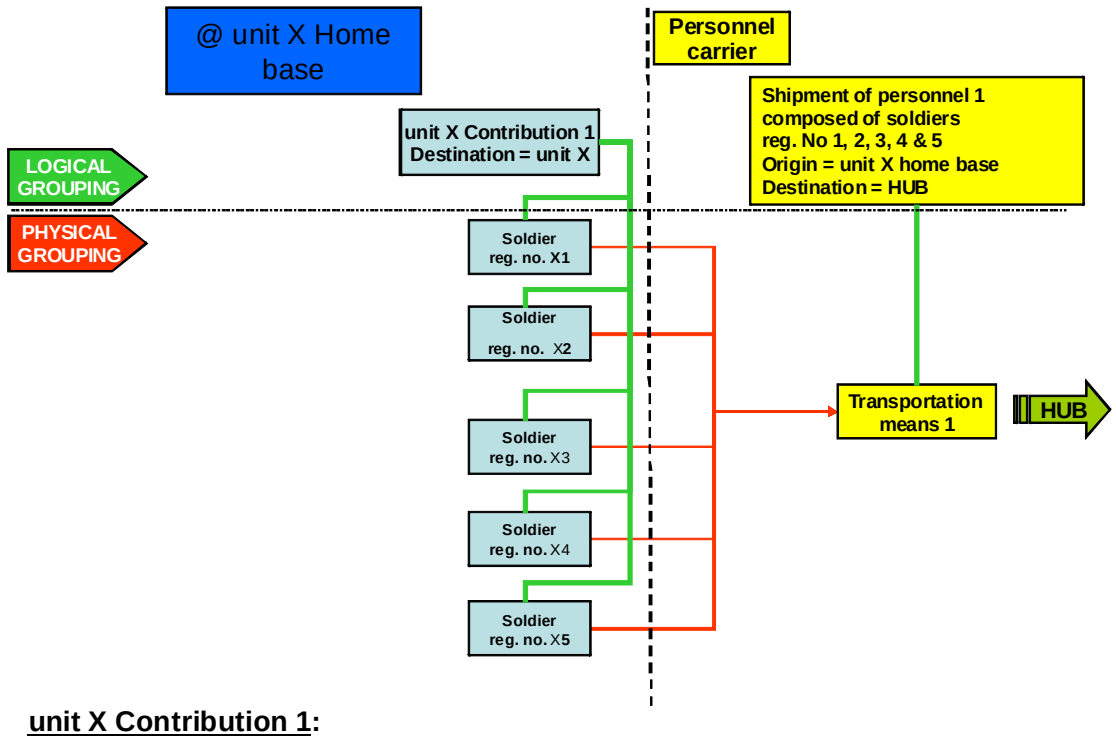


Figure 2-15 Personnel Tracking Scenario Routes and Legs

1. Personnel of Unit X and Y are going to deploy to their unit locations in the theatre of operations. The transportation is the personnel done via two different routes.

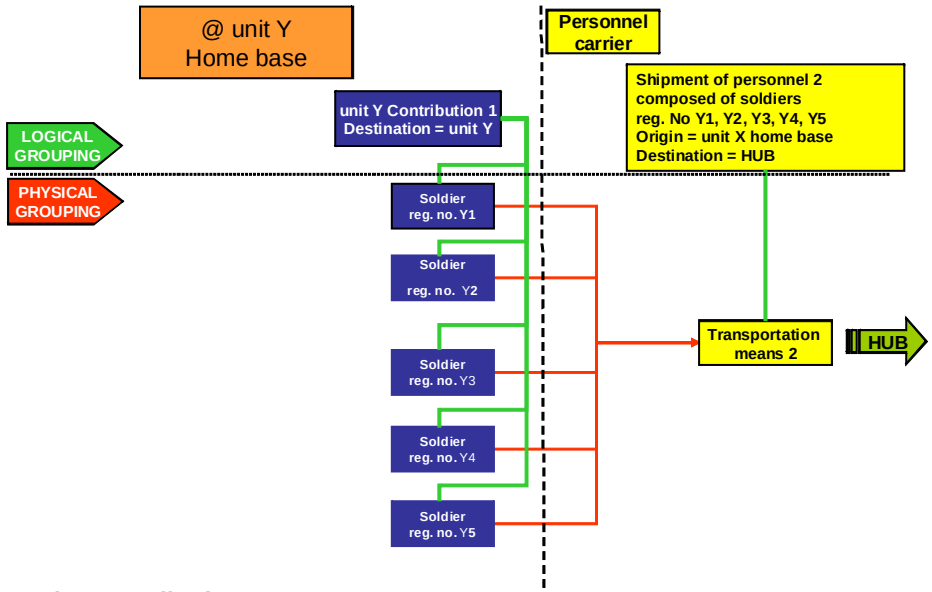
Route 1 has five legs:	Route 2 has five legs:
Leg 1: Unit X Home Base to Hub	Leg 1: Unit Y Home Base to Hub
Leg 2: Hub to POE	Leg 2: Hub to POE
Leg 3: POE to POD	Leg 3: POE to POD
Leg 4: POD to NSE	Leg 4: POD to NSE
Leg 5: NSE to Unit X location	Leg 5: NSE to Unit Y location



unit X Contribution 1:
soldiers of unit X to be send to the same destination (unit X) at the same time (RDD)

Figure 2-16 Actions at Unit X Home Base

1. Unit X is going to send Unit X.1 contribution consisting of personnel X1 to X5.



unit Y Contribution 1:
soldiers of unit Y to be send to the same destination (unit Y) at the same time (RDD)

Figure 2-17 Actions at unit Y home base

1. Unit Y is going to sent Unit Y.1 contribution consisting of personnel Y1 to Y5

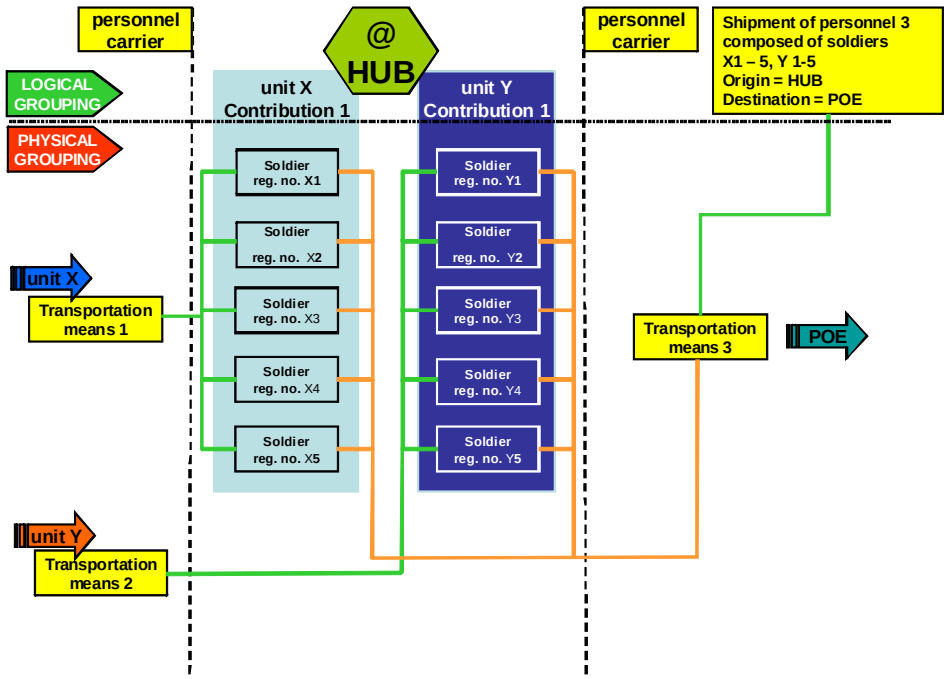


Figure 2-18 Actions at Hub

1. Transportation Means 1 and 2 arrive. The personnel of Unit X and Unit Y board Transportation Means 3. Transportation Means 3 transports the personnel to the POE

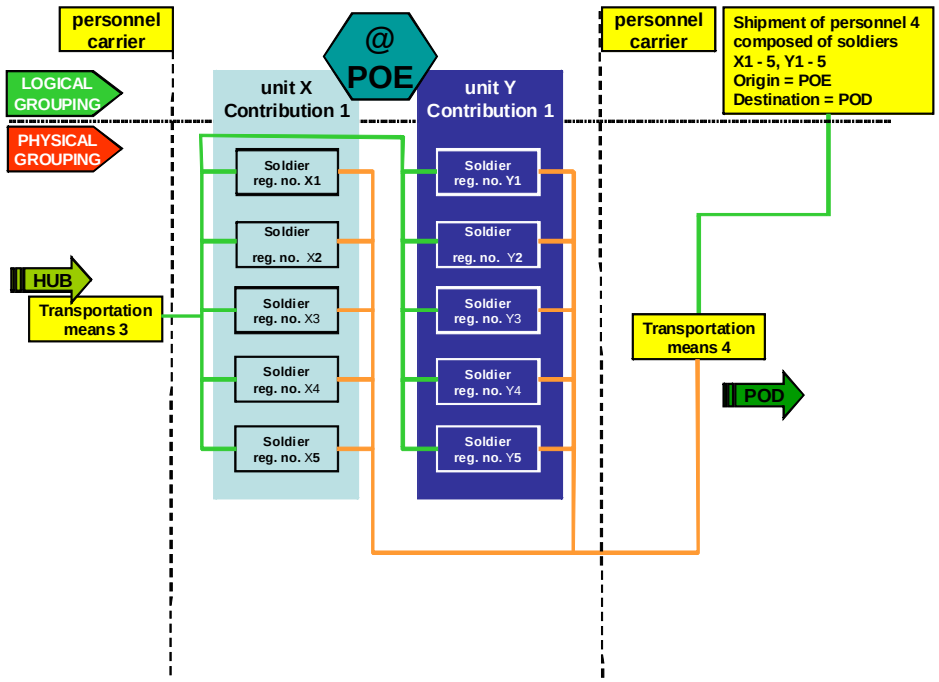


Figure 2-19 Actions at POE

1. Transportation Means 3 arrives. The personnel of Unit X and Unit Y get off Transportation Means 3. They then all board Transportation Means 4. Transportation Means 4 transports the personnel to the POD.

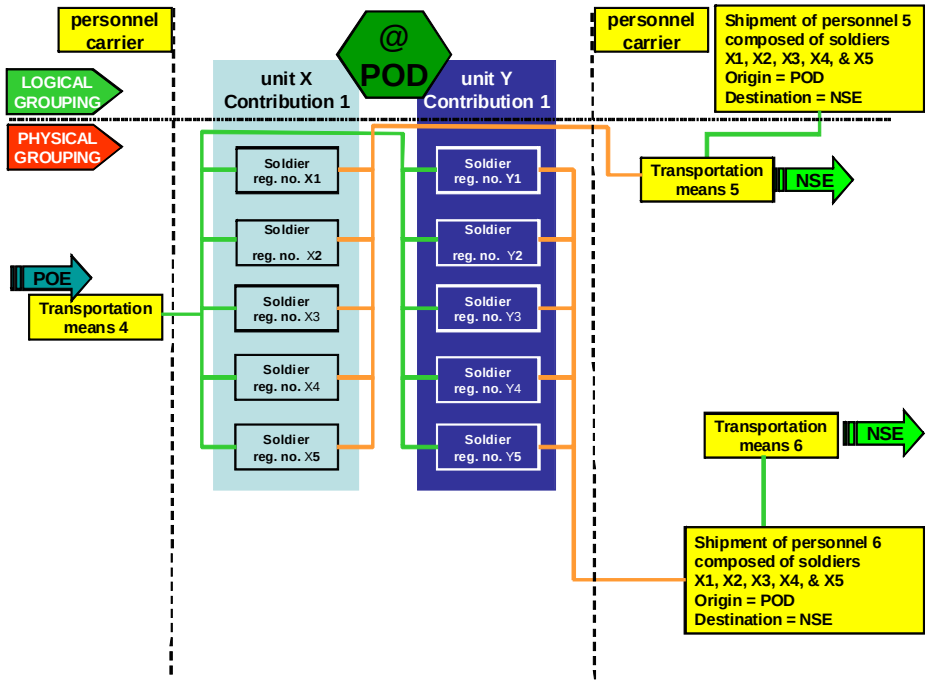


Figure 2-20 Actions at POD

1. Transportation Means 4 arrives. The personnel of Unit X and Unit Y get off Transport Means 4. Personnel X1- X5 board Transportation Means 5. Soldier Y1- Y5 board Transportation Means 6. Transportation Means 5 transports the personnel of Unit X to the NSE of Unit X. Transportation Means 6 transports the personnel of Unit Y to the NSE of Unit Y

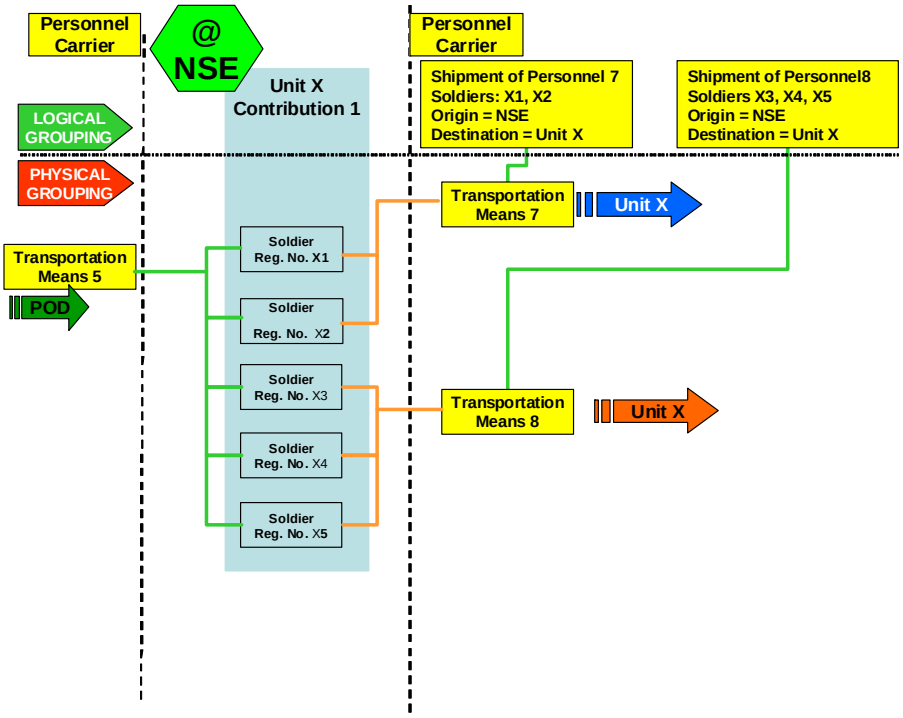


Figure 2-21 Actions at NSE (1)

2. Transportation Means 5 arrives. The personnel of Unit X get off Transportation Means 5. Personnel X1 and X2 board Transportation Means 7. Personnel X3- X5 board Transportation Means 8. Transportation Means 7 and 8 transport the personnel of Unit X to the location of Unit X.

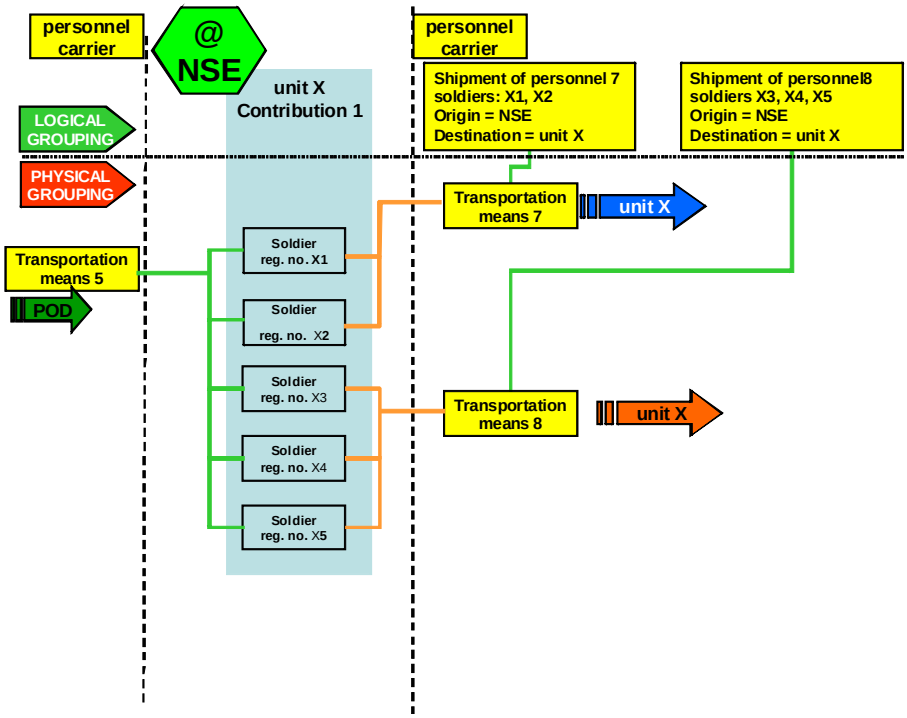


Figure 2-22 Actions at NSE (2)

3. Transportation Means 6 arrives. The personnel of Unit Y get off transportation Means 6. Soldier Y1 – Y3 board Transportation Means 9. Personnel Y4 and Y5 board Transportation Means 10. Transportation Means 9 and 10 transport the personnel of Unit Y to the location of Unit Y.

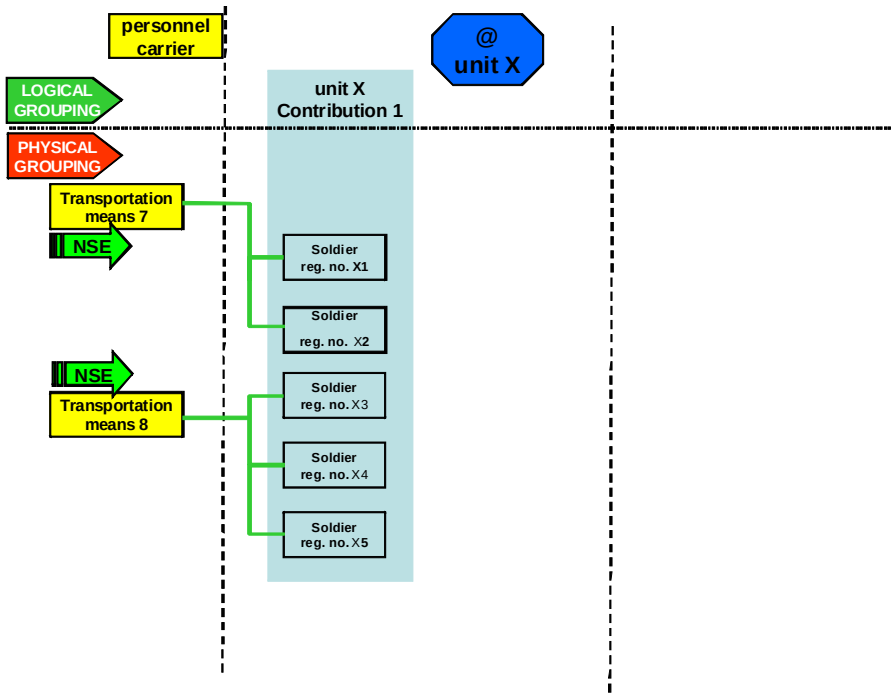


Figure 2-23 Actions at Unit X Location

1. Transportation Means 7 and 8 arrive. The personnel of Unit X get off the Transportation Means 5. Soldier X1 – X5 have now arrived at their final destination. Unit X contribution 1 has now arrived

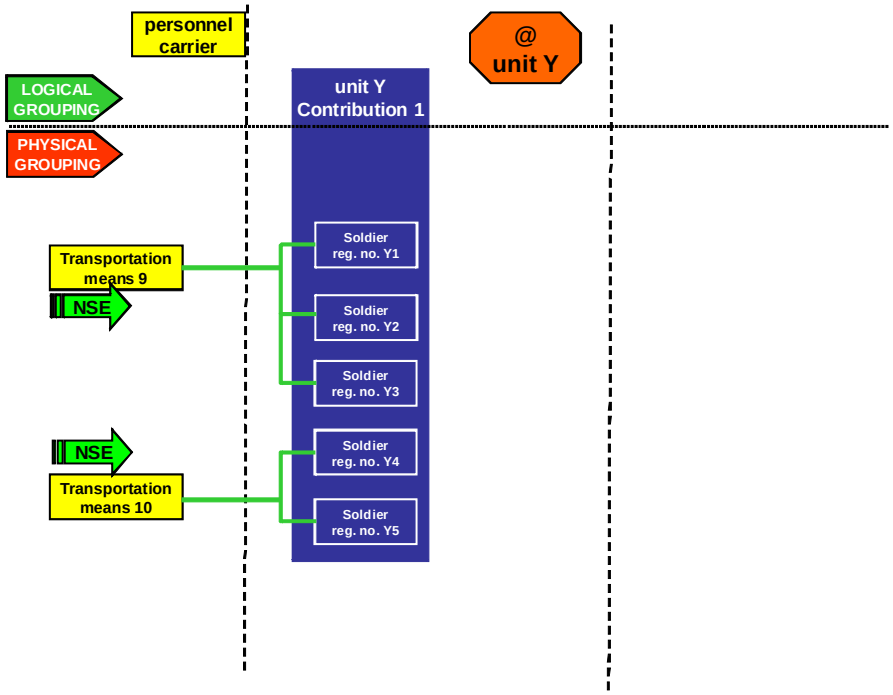


Figure 2-24 Actions at Unit Y Location

1. Transportation Means 9 and 10 arrive. The personnel of Unit Y get off the Transportation Means 5. Personnel Y1 – Y5 have now arrived at their final destination. Unit Y contribution 1 has now arrived.

Chapter 3
ACTIVITY DIAGRAMS

0301 Introduction

This chapter describes the activity diagrams for the execution of the preparation processes, the consignment tracking and personnel tracking scenario processes and the reporting processes.

If a nation already has a business process, which is different to the processes outlined in this model but results in the same information, then it is the exchange of information requirements that should be met rather than the exact implementation of the activity diagram.

0302 Preparation Processes

The preparation processes are performed when a nation is preparing for participation in an operation. Some of these activities could also be a part of a national business process.

The activity diagrams depict the relevant point for information exchange with NATO and or other participating nations if required.

Most activity diagrams are divided into two parts. The first part depicts the activities in the standard business process of the nation. The second part depicts the required information exchange with NATO and other participating nations.

Create unit profiles and holdings

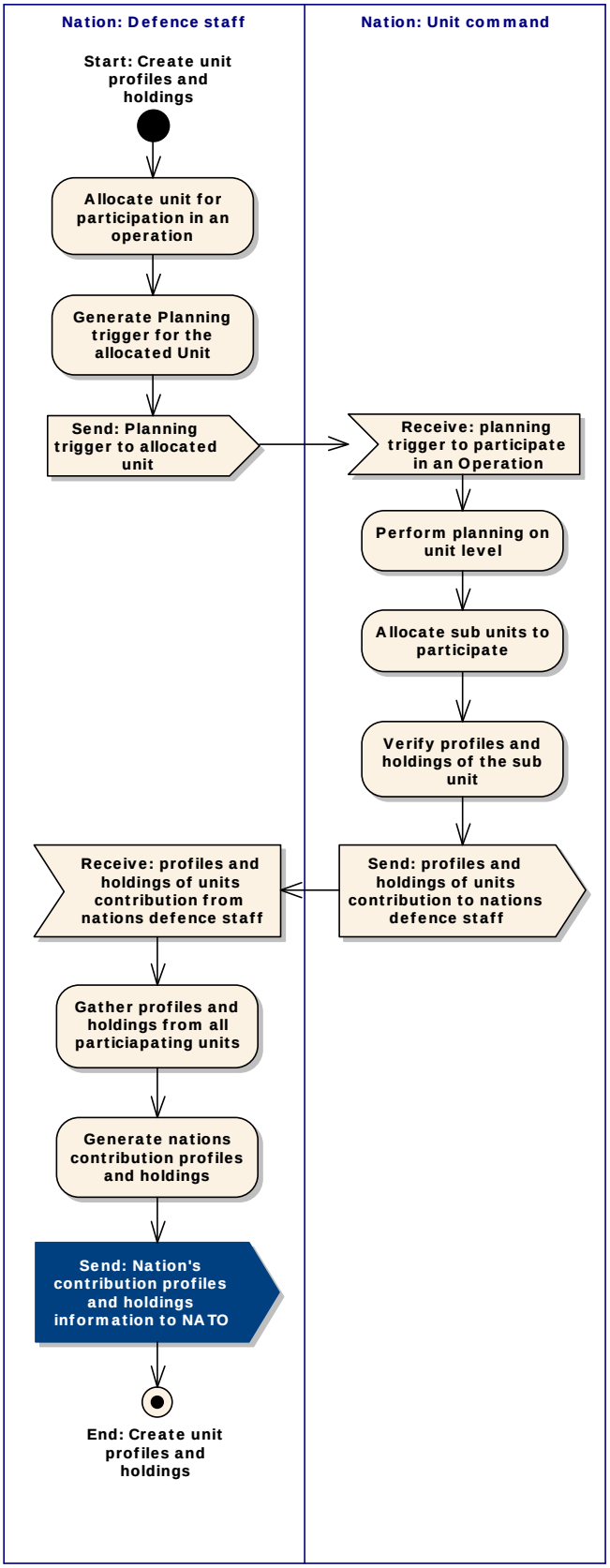


Figure 3-1 Create Unit Profiles and Holdings

Create unit profiles and holdings results in the basic information set that is needed to keep track of the assets of a unit. The profiles depict the structure of the unit and its sub units and the holdings depict the capabilities

of the unit defined by a Reportable Item Code (RIC). Each asset should contain an identifier to place it in the holdings of a unit.

Change Unit Profiles and Holdings

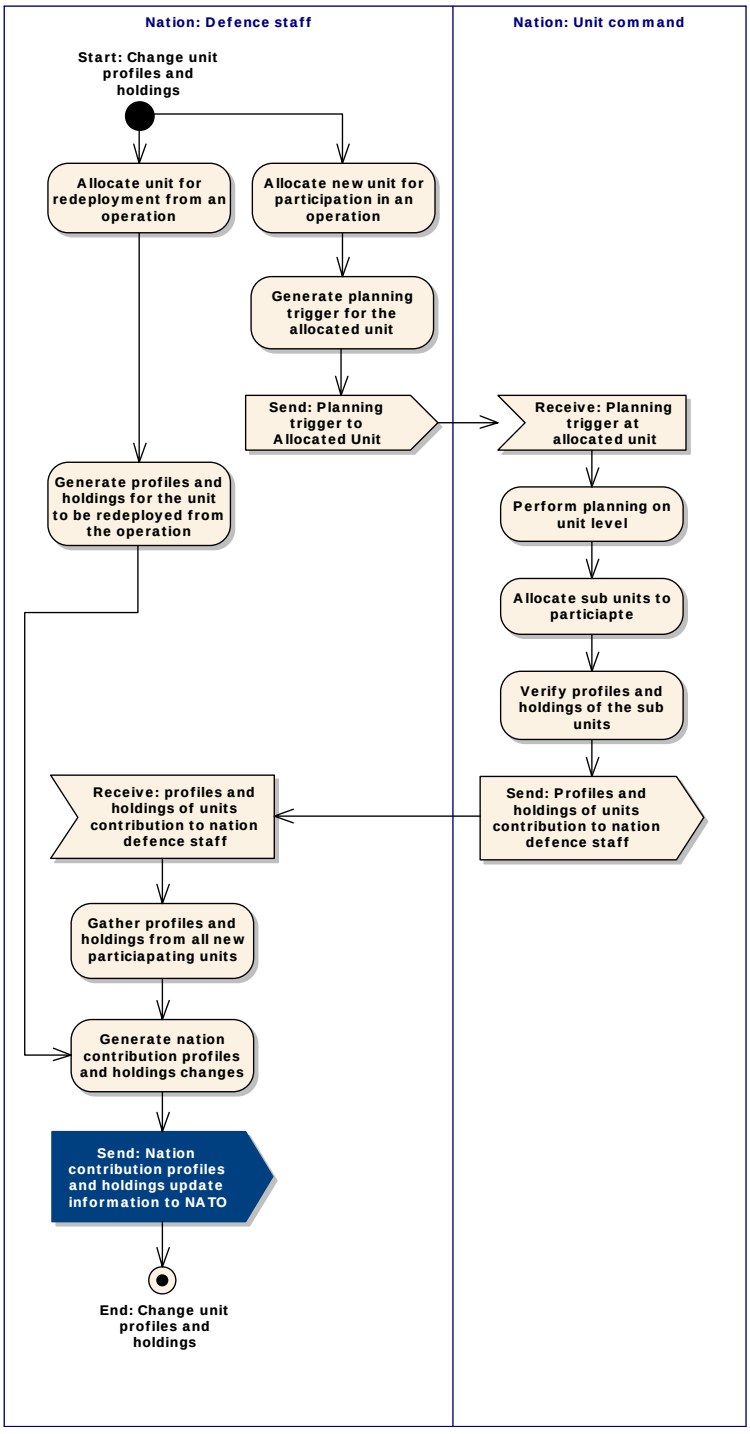


Figure 3-2 Change Unit Profiles and Holdings

Change unit profiles and holdings results in an updated basic information set that is needed to keep track of the assets of a unit. These updates are expected to happen during the execution of the Operation.

Unit Profiles and Holdings Information Exchange

After the execution of create or change unit profiles and holdings activities, the information that was gathered must be sent to NATO to create an update of NATO's unit profiles and holdings for a certain operation.

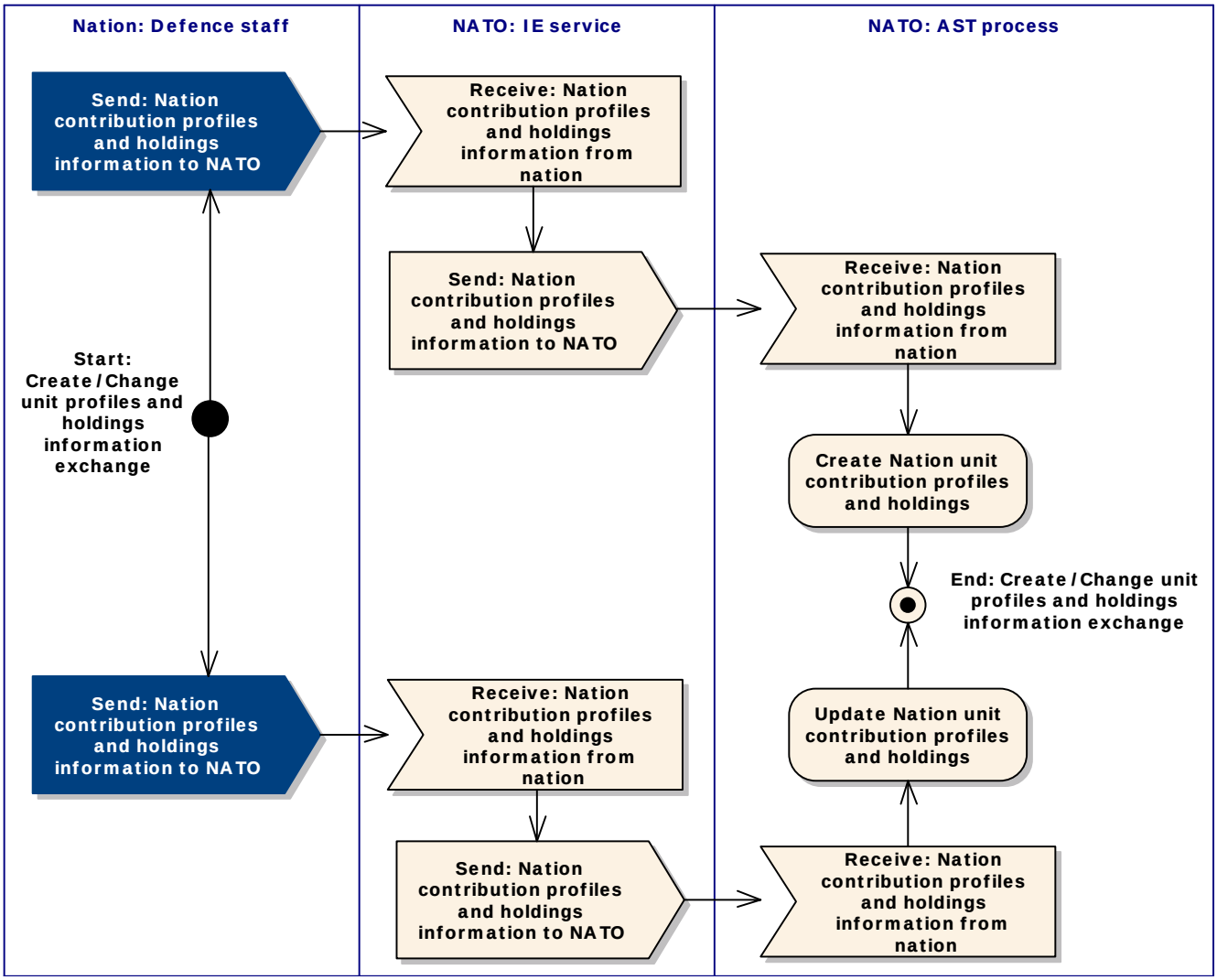


Figure 3-3 Unit Profiles and Holdings Information Exchange

0303 Planning and Party Identification Information Exchange

Perform Transport Planning

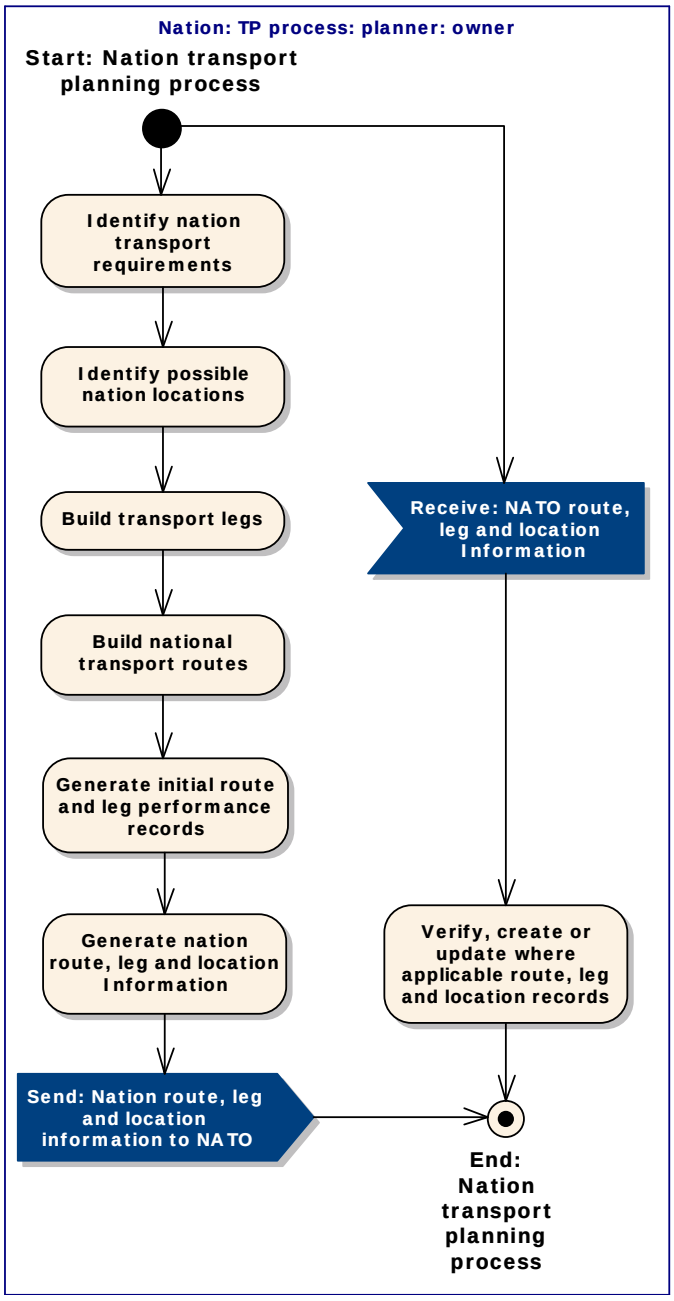


Figure 3-4 Performs Transport Planning

In order to identify the total transport requirement each nation will perform transport planning as a standard activity. The nation will do this according to its own business process.

In order to be able to improve the performance of a supply chain it is recommended that routes are employed. Routes consist of legs. Legs are two locations connected by a means of transport.

Routes are constructed based on the total requirement for transport to and from a theatre of operations.

Routes, Legs and Locations Information Exchange

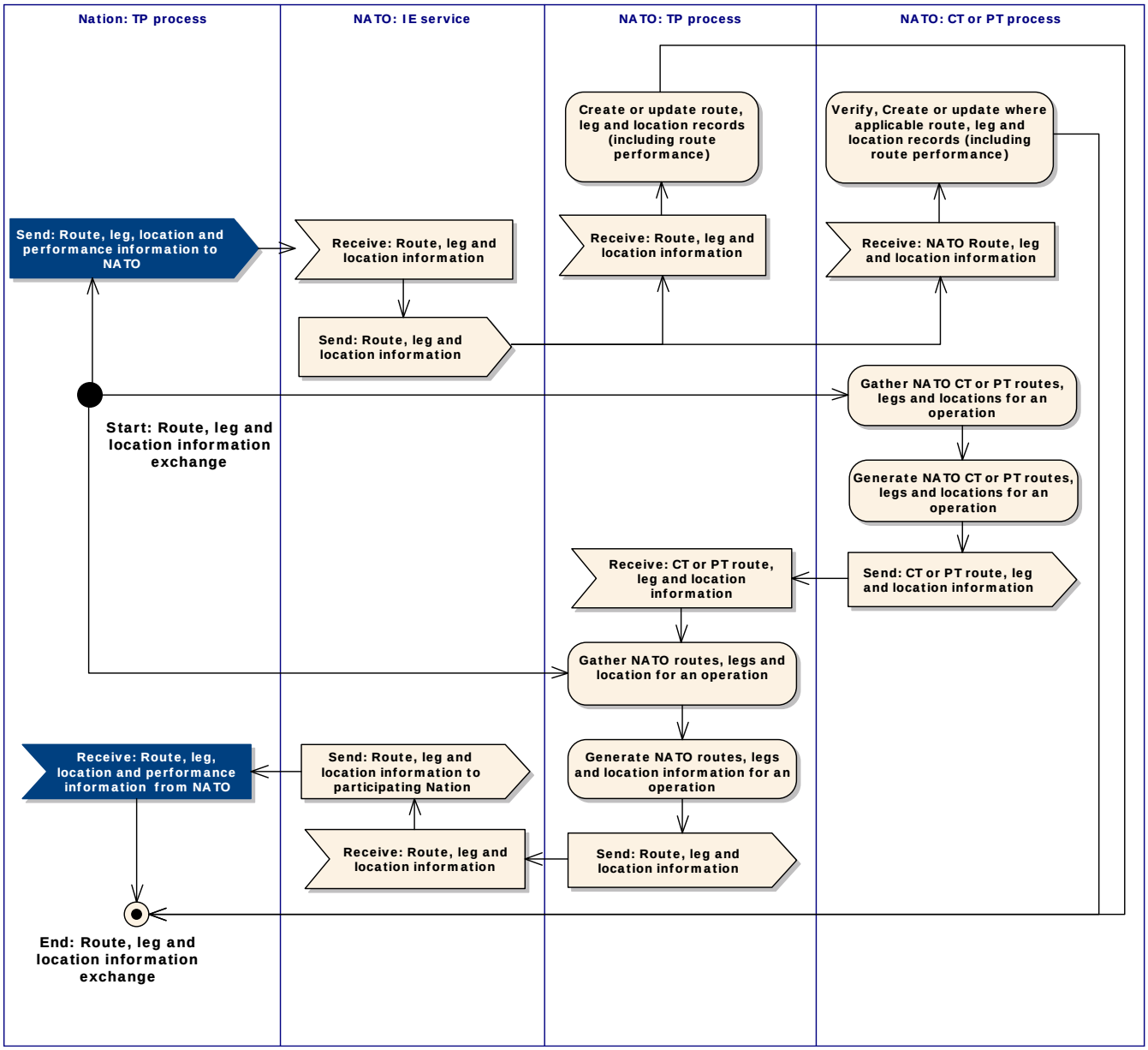


Figure 3-4 Routes, Legs and Locations Information Exchange

If a nation employs routes in its own business process it must share these with NATO and the other participating nations. If a nation decides to use another nation's routes then this is the way to share the information between each participant in the operation. The information exchange requirements are shown in Figure 3-4.

Party Identification Information Exchange

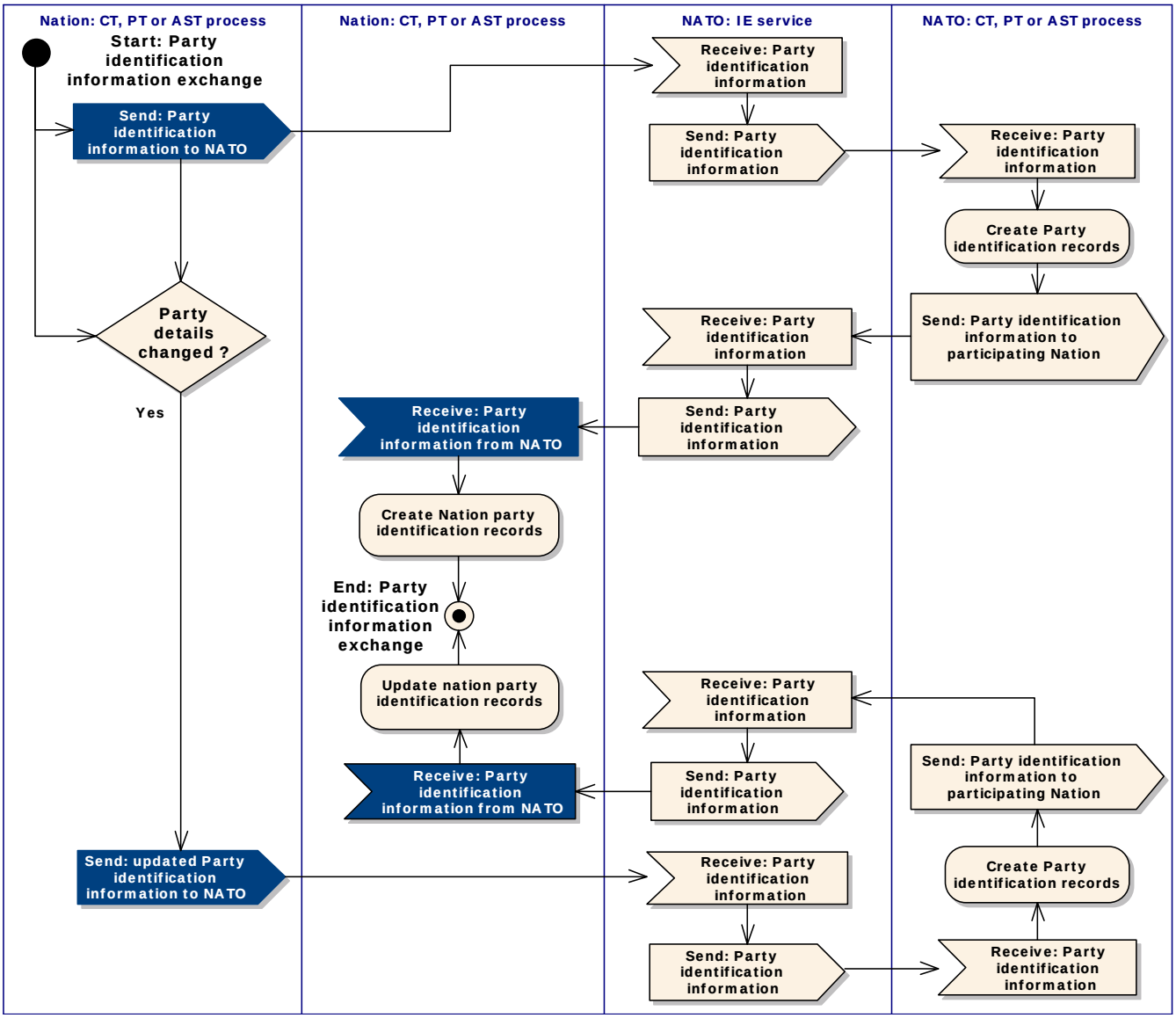


Figure 3-5 Party Identification Information Exchange

Each nation will have one or more parties at a certain location. Parties can be unit elements, commands. Party information must be shared between all participants. These information exchange activities ensure that all parties are aware of each other and can act as senders or receivers of assets.

0304 Creation, Committing and Decommissioning assets

Create Asset

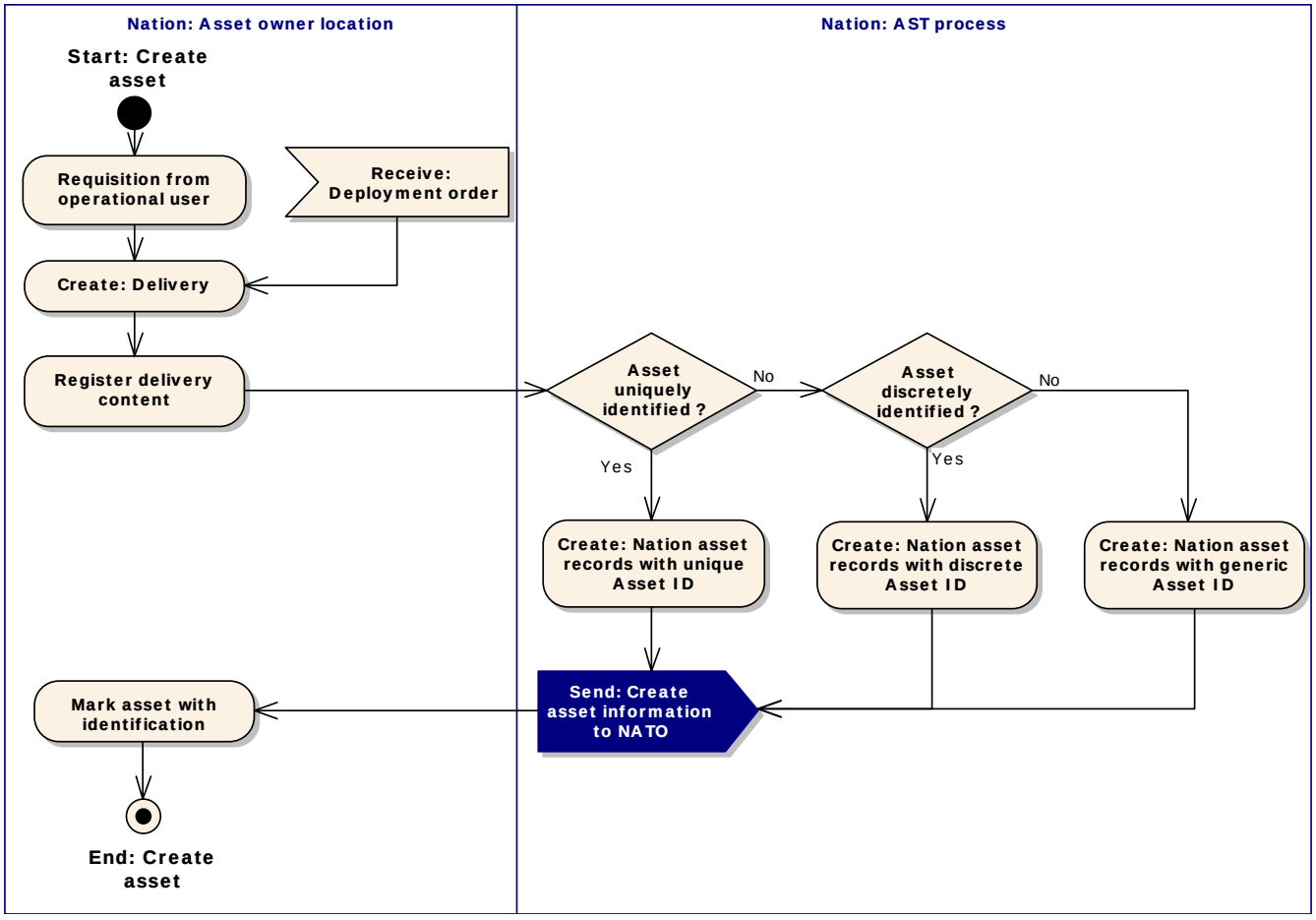


Figure 3-6 Create Asset

Nations will usually create assets in their own asset tracking system as a part of their standard day to day asset tracking process. Most assets will exist before on national AST systems but some assets will be bought during a NATO operation or specifically for a NATO operation. If a new asset is used by a nation the create asset activities ensure the ability to share information relating to a particular asset.

Create Asset Information Exchange

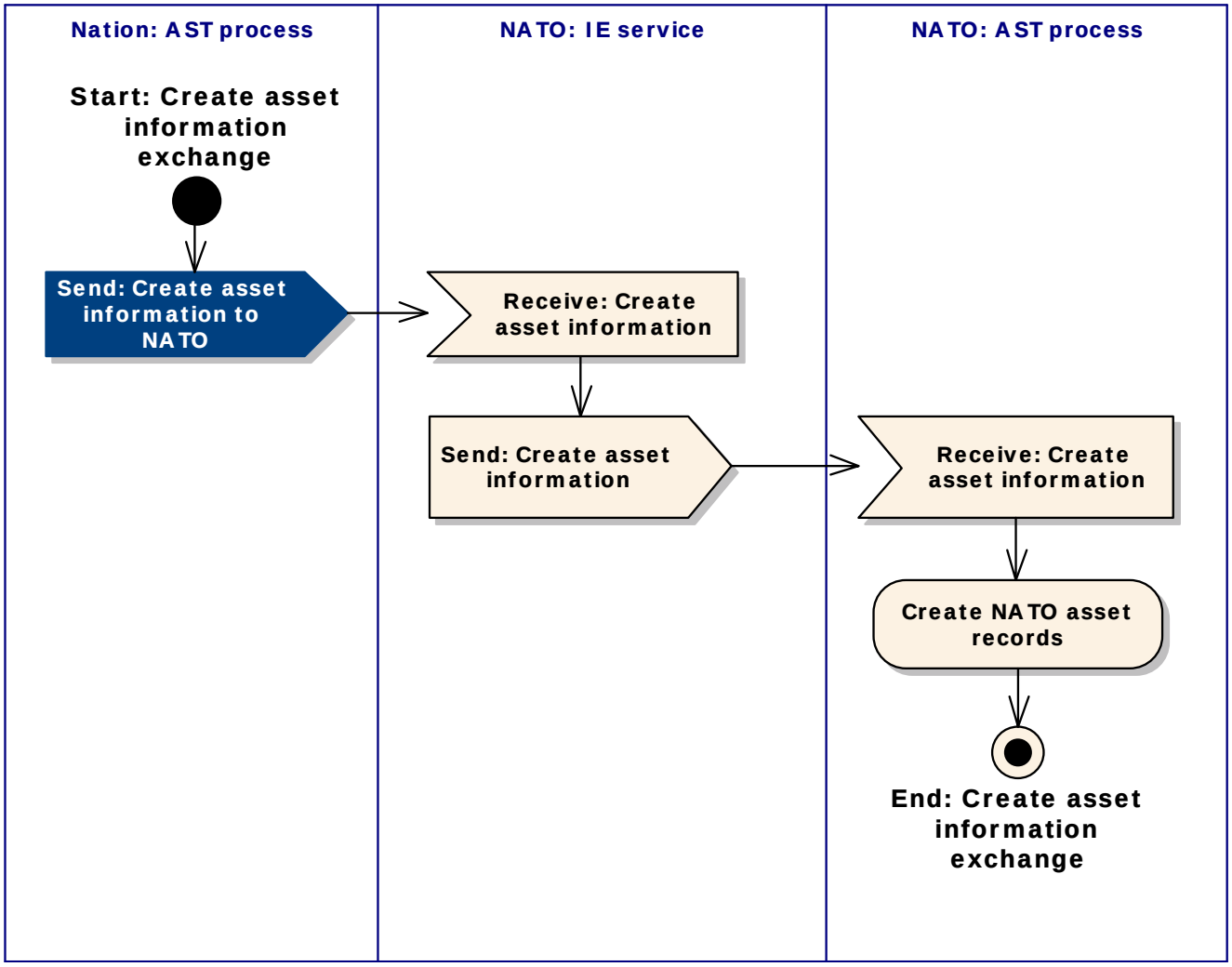


Figure 3-7 Create Asset Information Exchange

If a new asset is created during an operation as a part of a nation's own standard asset tracking process then the activities in Figure 3-7 specify the asset details that will be exchanged with NATO if deemed necessary.

Commit Asset to an Operation

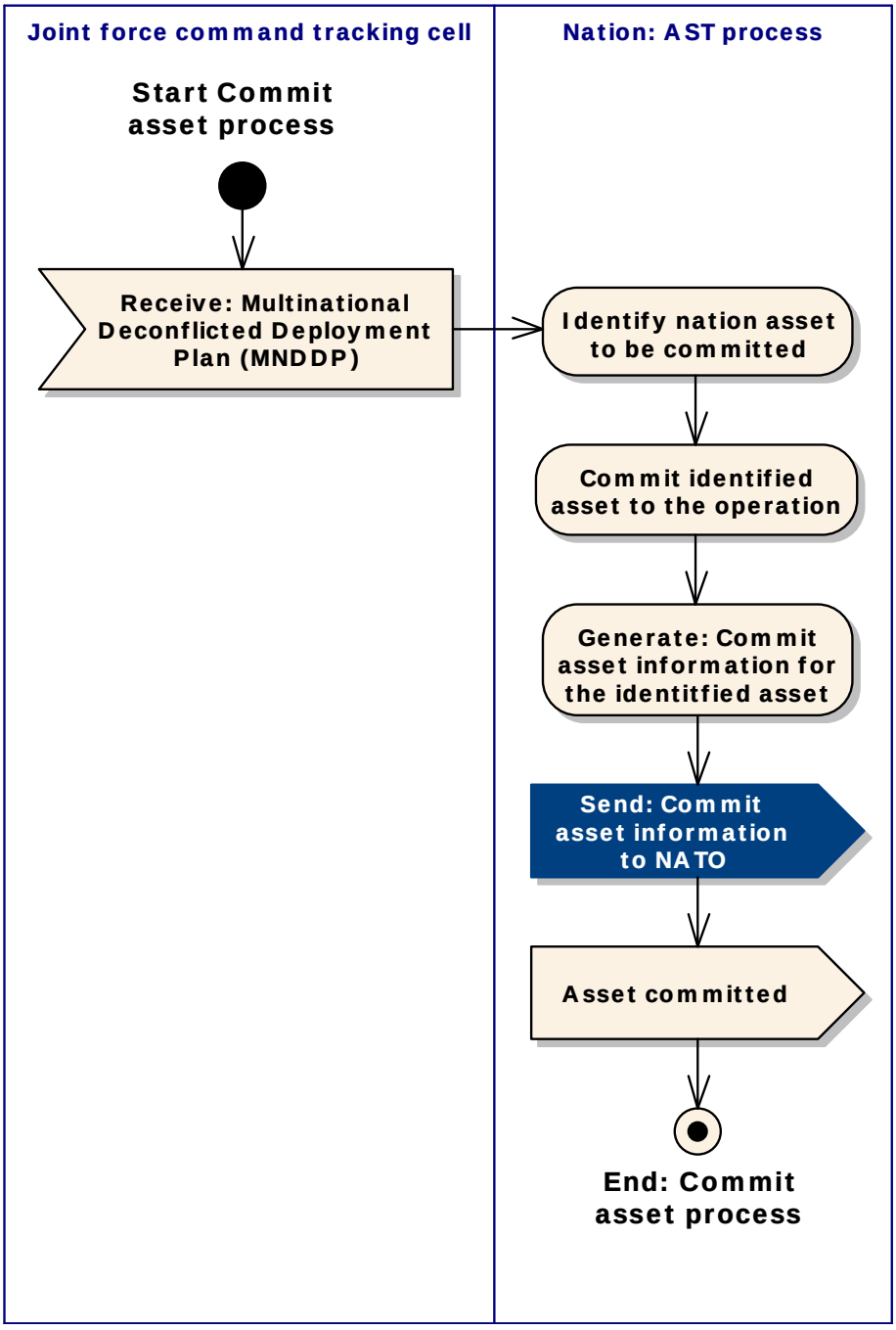


Figure 3-8 Commit Asset to an Operation

Each nation will commit units to an operation. Each individual asset (holdings) of that unit must also be committed, when the transfer of authority over the asset occurs.

Assets remain committed until they are decommissioned or are no longer able to perform their capability.

Commit Asset to an Operation Information Exchange

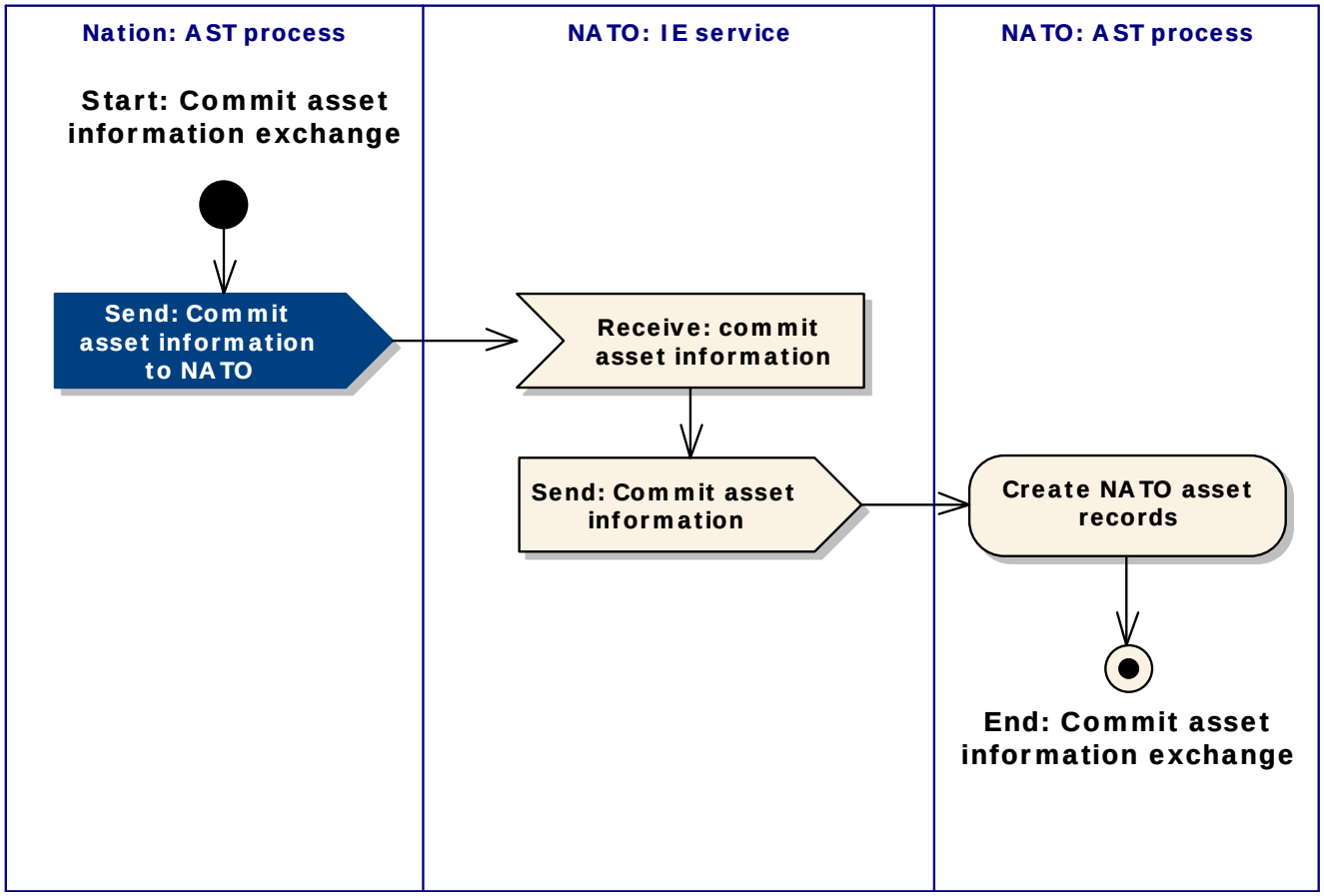


Figure 3-9 Commit Asset to an Operation Information Exchange

Every time an asset is committed a minimum set of information must be exchanged.
Initially the information is only exchanged with NATO and not with other nations.
The information can be shared later on in the process if deemed necessary.

Uncommit Asset from an Operation

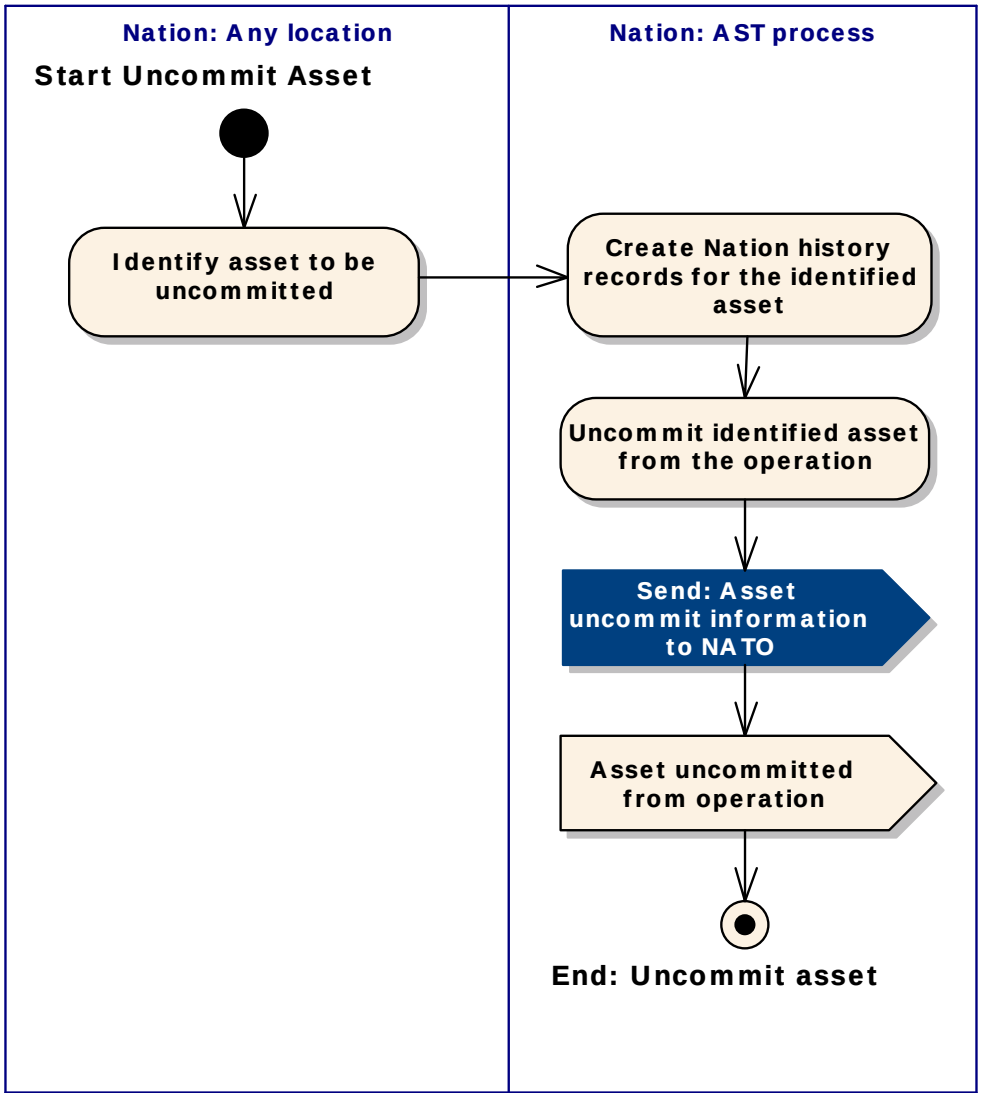


Figure 3-10 Uncommit Asset from an Operation

Each nation will uncommit assets during operations and during periods of redeployment. Every time an individual asset (holdings) is uncommitted authority transfers to the owning nation.

Assets remain committed until they are uncommitted or are no longer able to perform their capability.

Uncommit Asset from an Operation Information Exchange

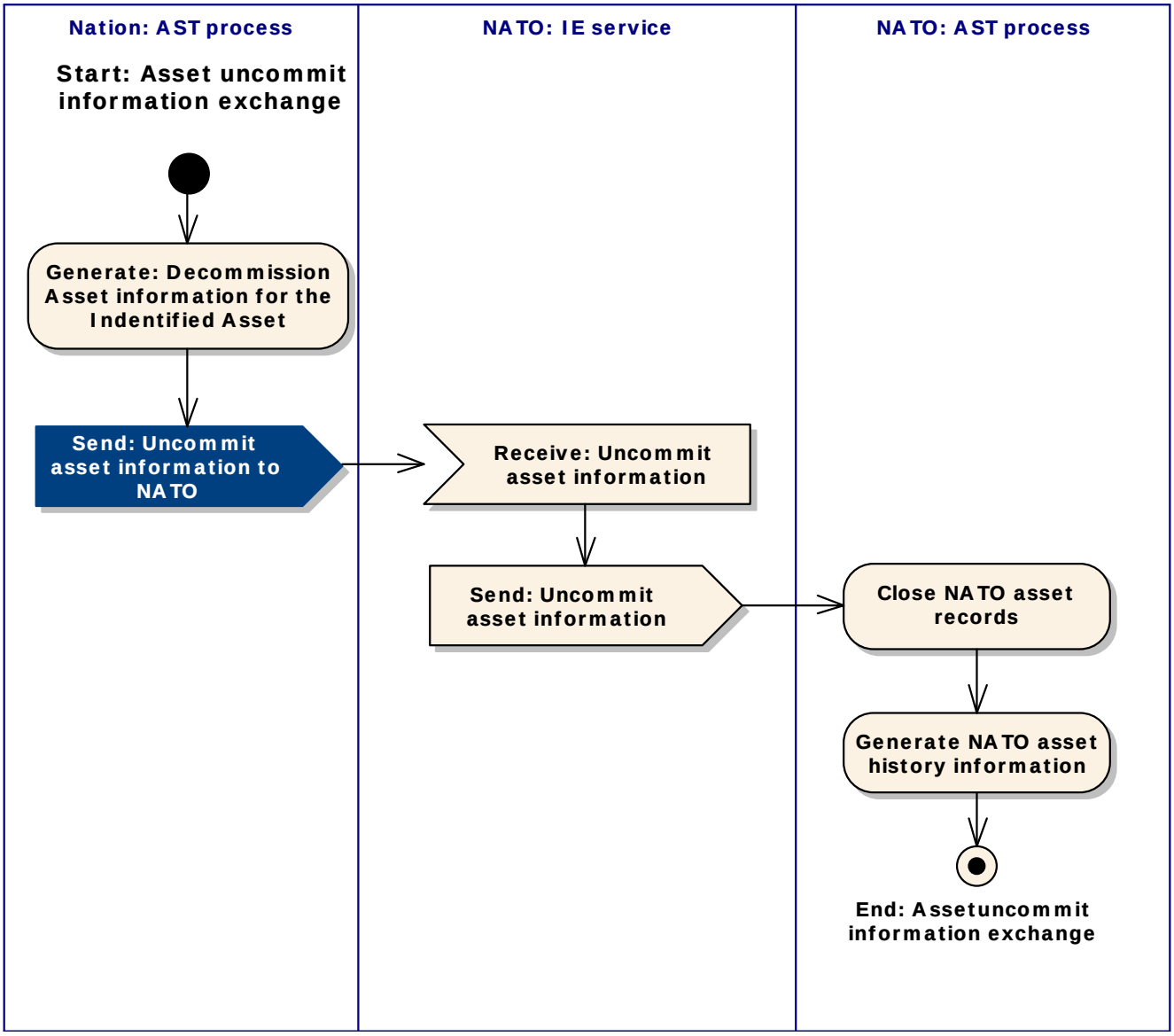


Figure 3-11 Uncommit Asset from an Operation Information Exchange

Every time an asset is uncommitted a minimum set of information must be exchanged between NTAO and nations.

NATO is informed that an asset has been uncommitted.

The information is only exchanged with NATO, not with other nations at this moment.

The information can be shared later on in the process if deemed necessary.

0305 Asset Capability Change Information Exchange

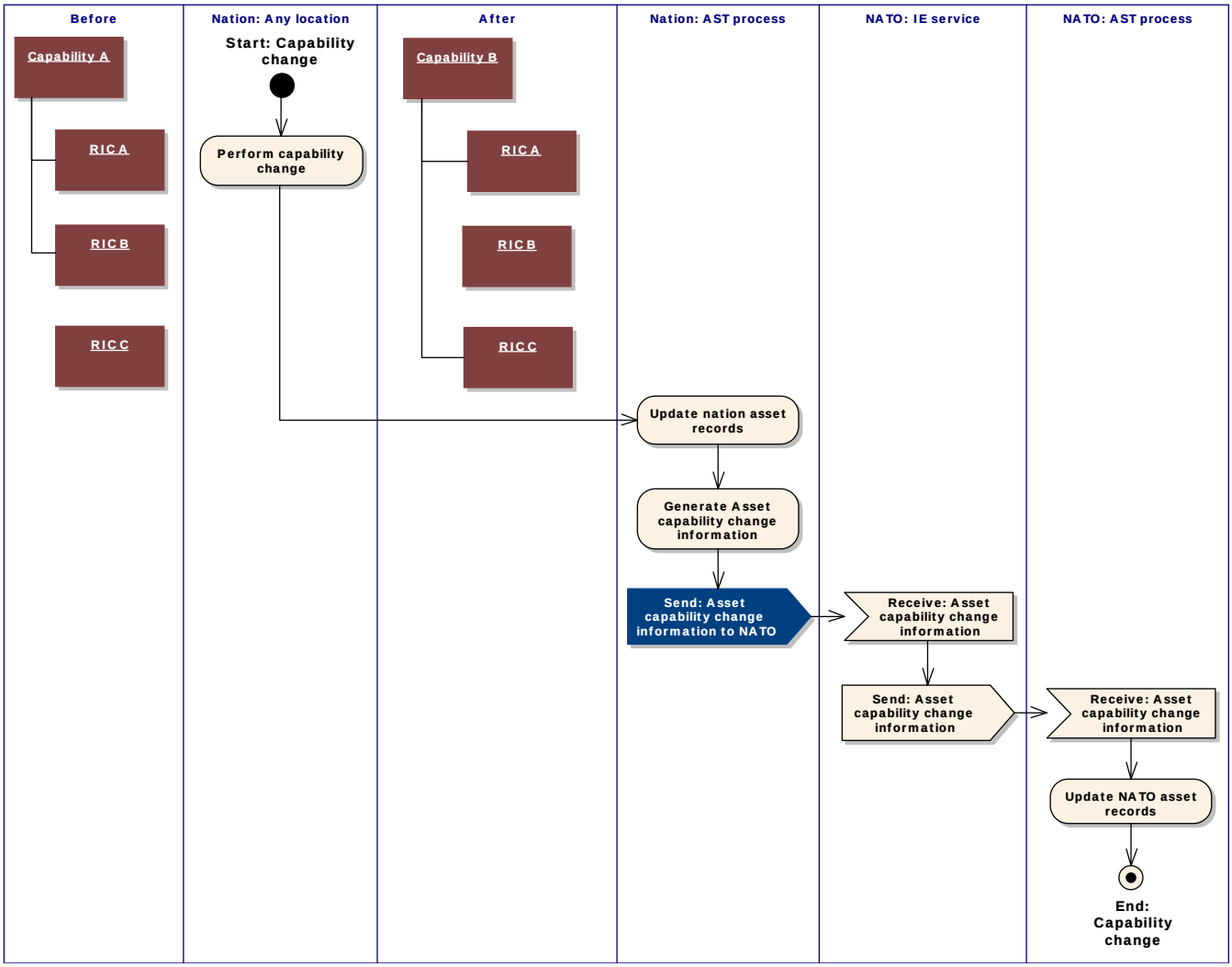


Figure 3-12 Asset Capability Change Information Exchange

Modern assets have the ability to change capability. Each time an asset changes capability (i.e. its RIC changes), these activities are reported to ensure that the RIC is updated.

0306 Consignment Tracking of Equipment and /or Items of Supply

Create Transport Package

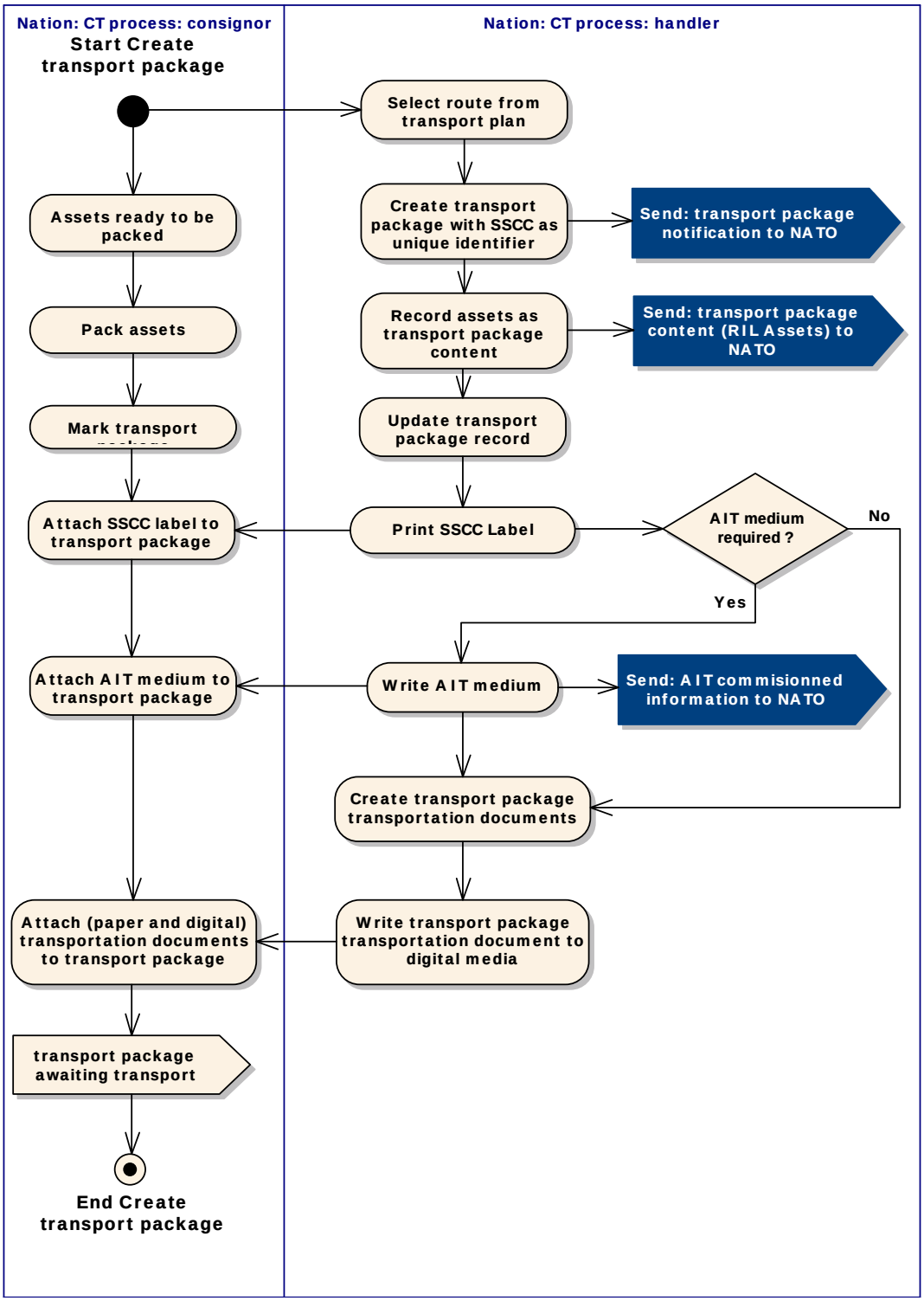


Figure 3-13 Create Transport Package

Equipment and items of supply listed on the Reportable Items List (RIL) are tracked as part of transport packages. Every time a transport package is created this minimum set of activities is to be performed.

Create Transport Package Information Exchange

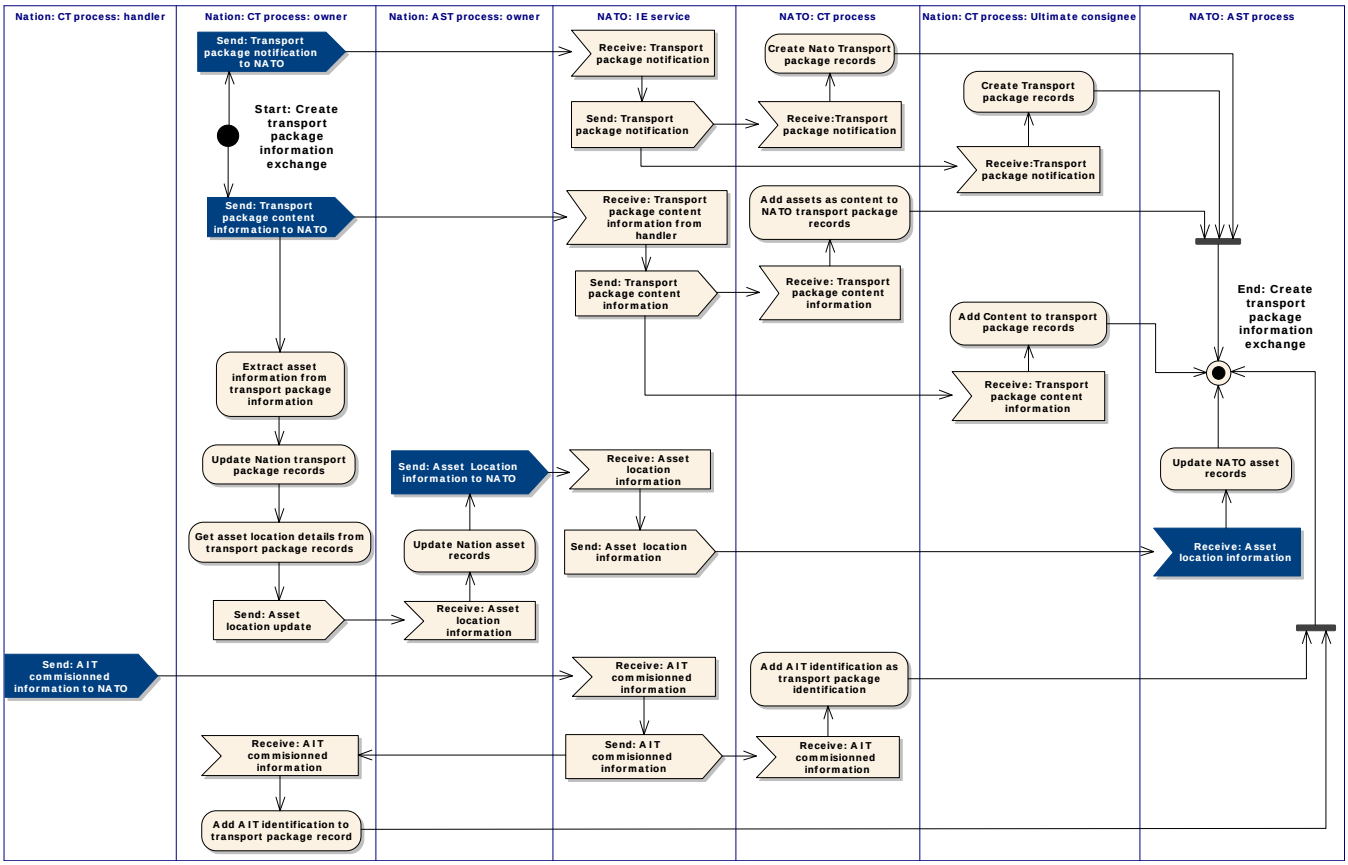


Figure 3-14 Create Transport Package Information Exchange

Every time a transport package is created a minimum set of information is exchanged between the participating nation and NATO or other participating nations that need to be informed about a transport package.

Create Consignment

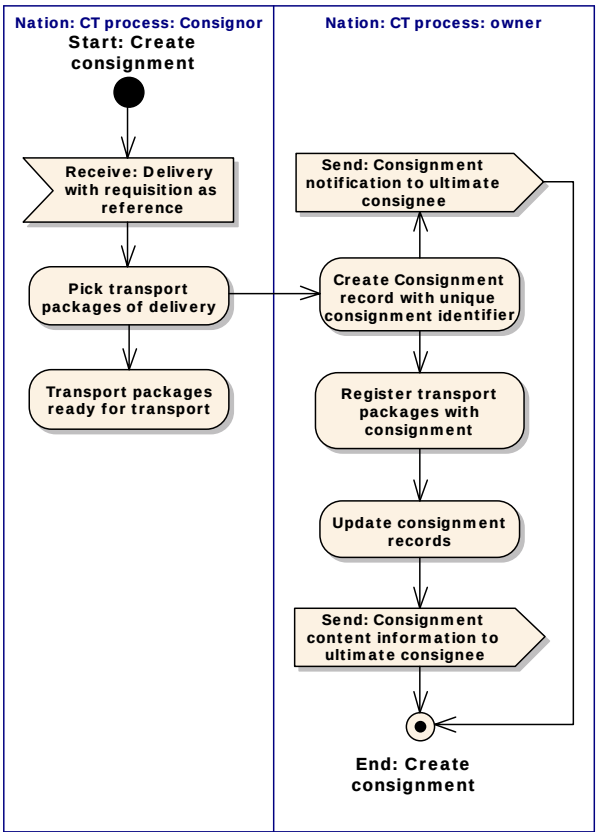


Figure 3-15 Create Consignment

This diagram represents the nation's own ability to use a logically grouped consignment.

Create Consignment Information Exchange

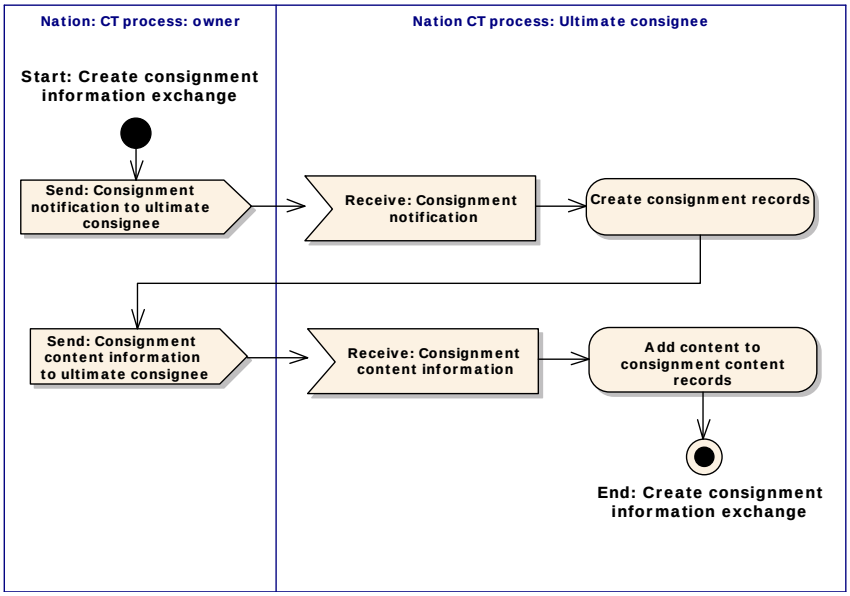


Figure 3-16 Create consignment information exchange

For consignment tracking, the information exchange is limited to that which is required to meet national requirements. There is no requirement to share information with NATO on national consignments.

Create Shipment

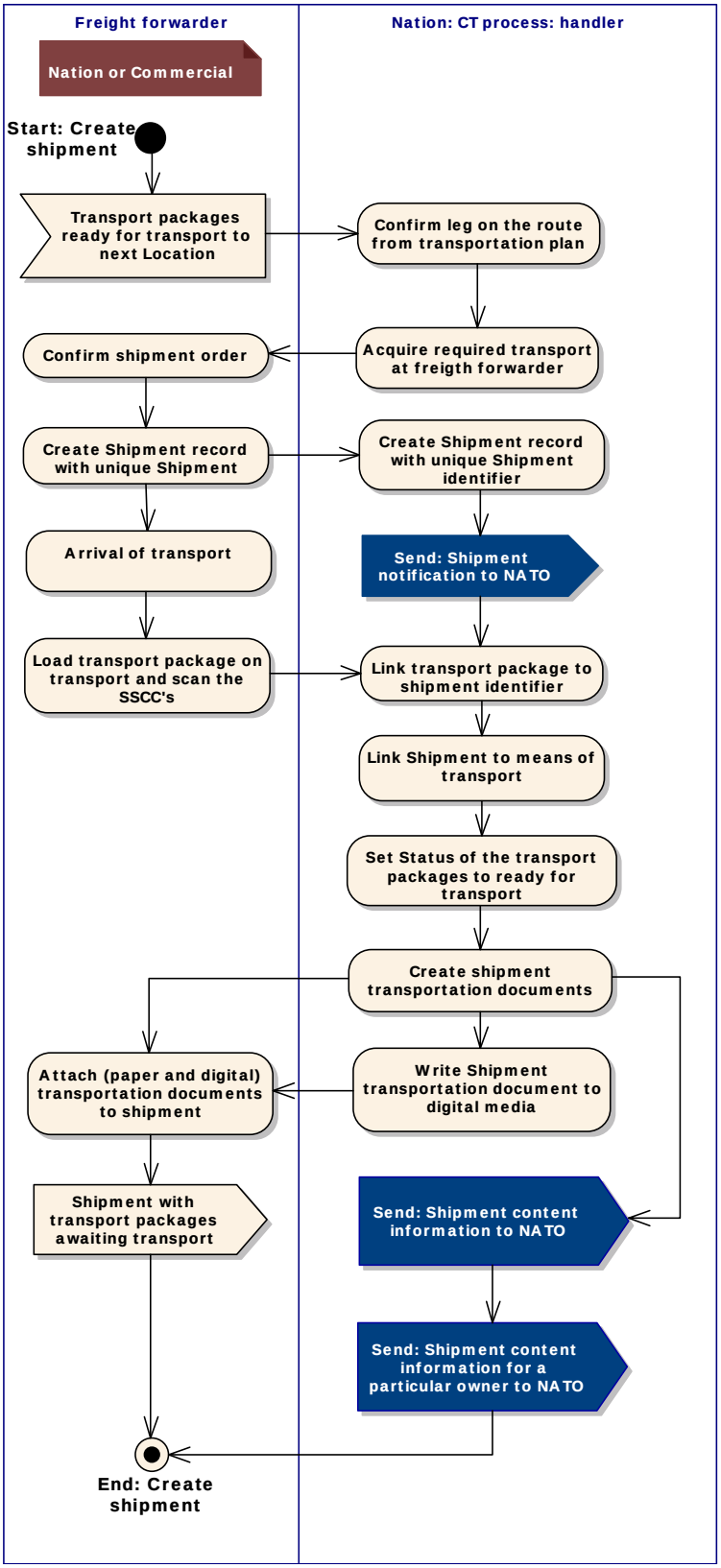


Figure 3-17 Create shipment

A shipment is a logical grouping of one or more transport packages. This diagram depicts the minimum set of activities that need to be performed each time a shipment is created.

Create Shipment Information Exchange

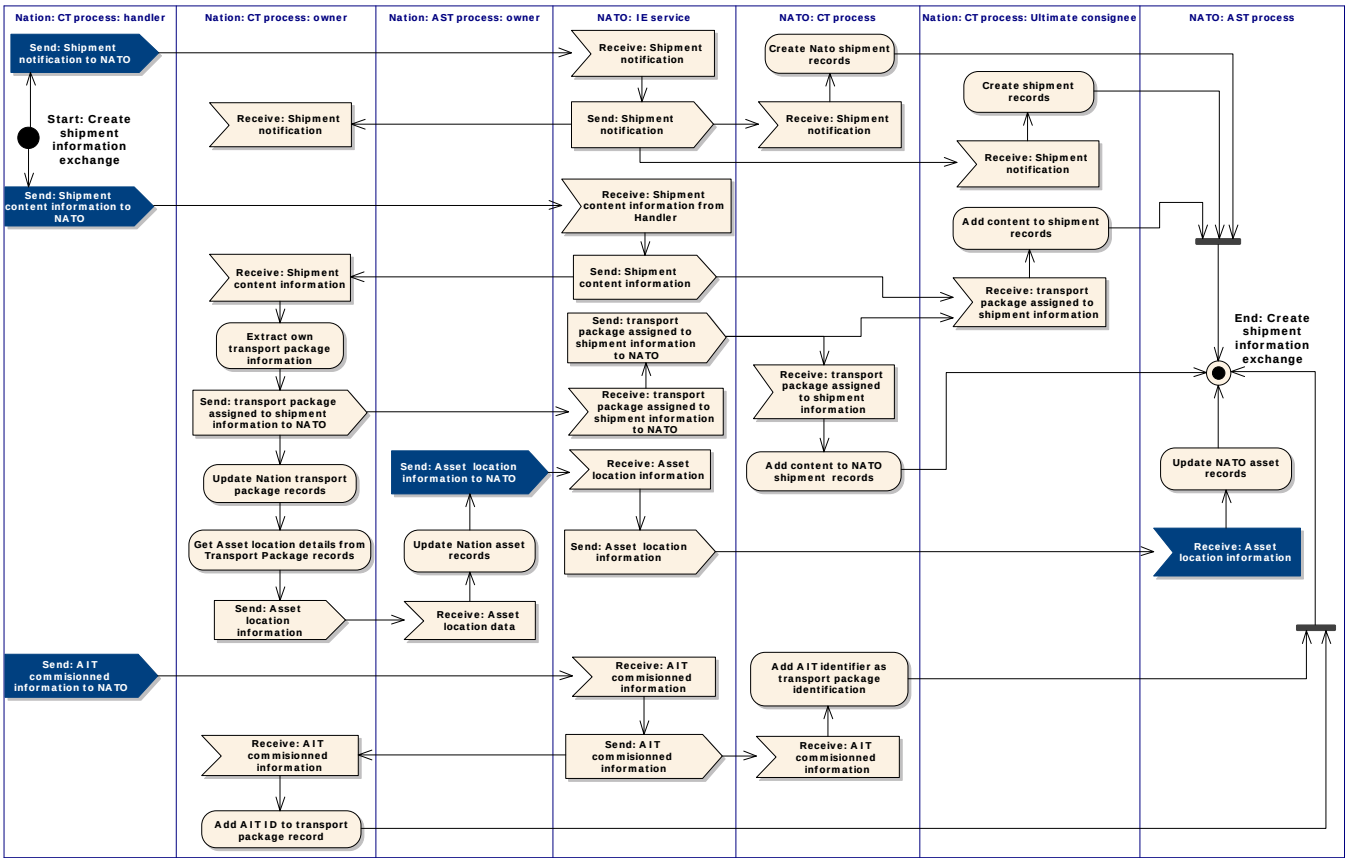


Figure 3-18 Create Shipment Information Exchange

Each time a shipment is created a minimum set of information is to be exchanged with NATO or other participating nations.

Despatch Shipment

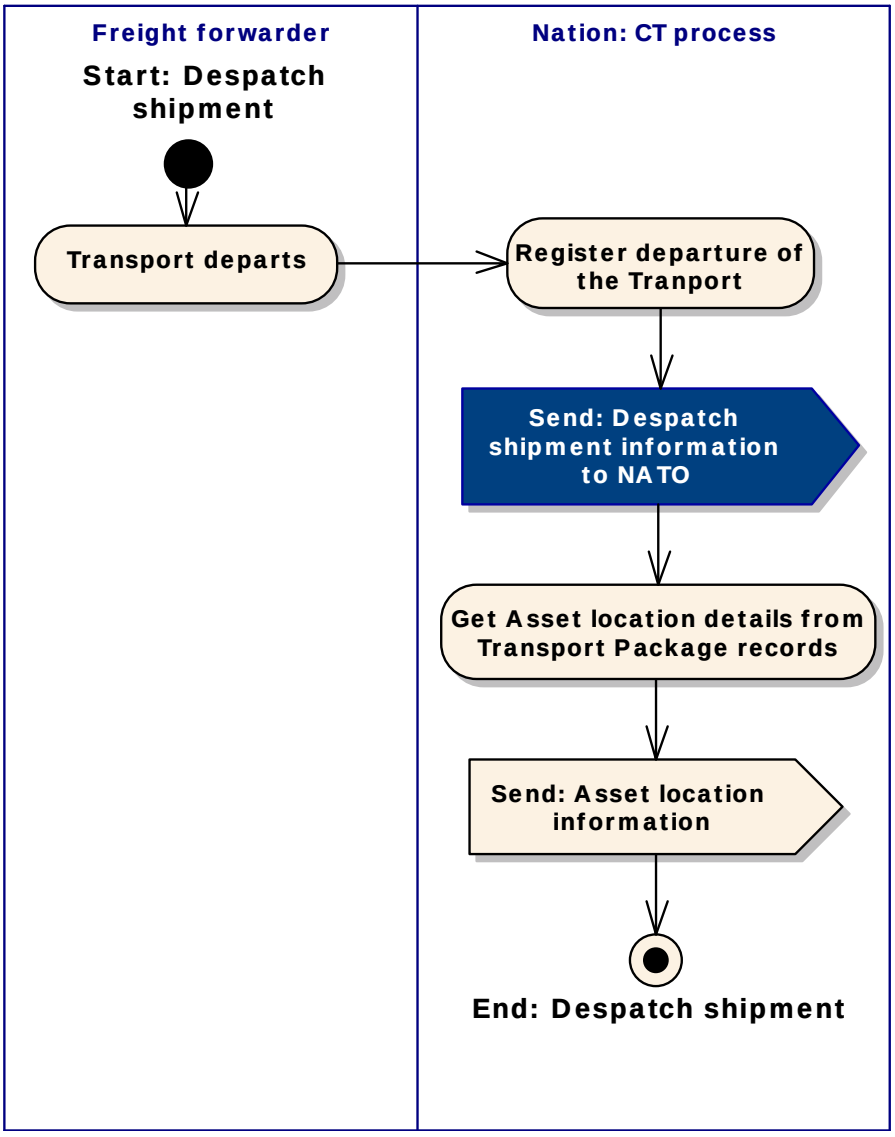


Figure 3-19 Despatch shipment

This diagram depicts the minimum set of activities that need to be performed each time a shipment is Despatched.

Despatch Shipment Information Exchange

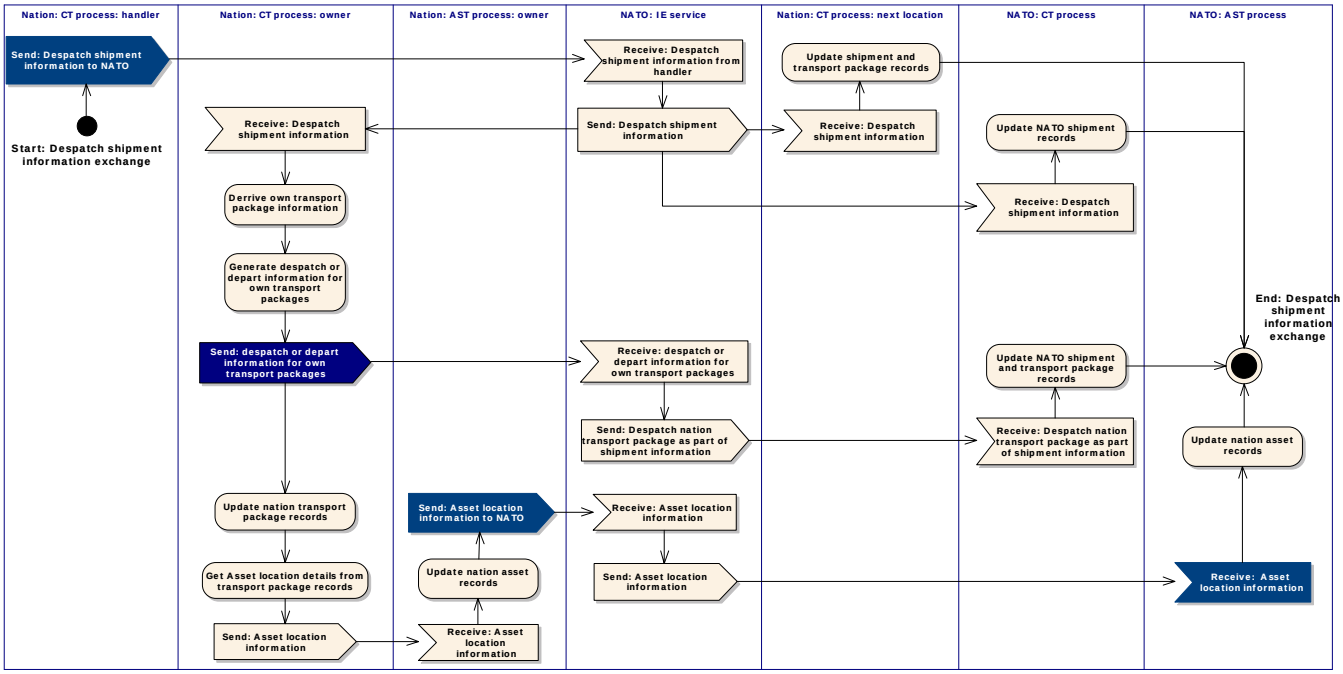


Figure 3-20 Despatch Shipment Information Exchange

Each time a shipment is despatched a minimum set of information is to be exchanged with NATO or other participating nations.

Receive Shipment

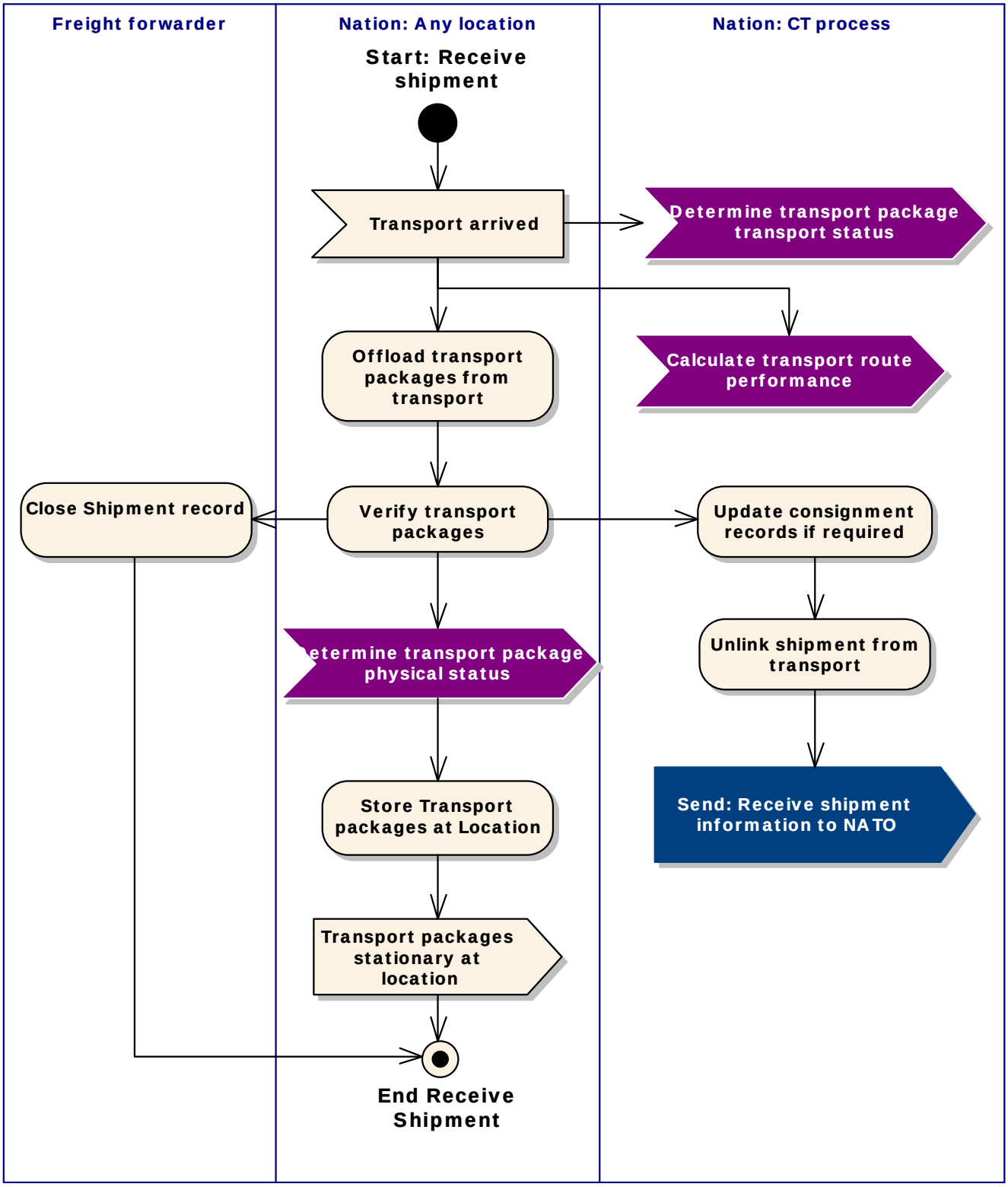


Figure 3-21 Receive shipment

This diagram depicts the minimum set of activities that need to be performed each time a shipment is received.

Receive Shipment Information Exchange

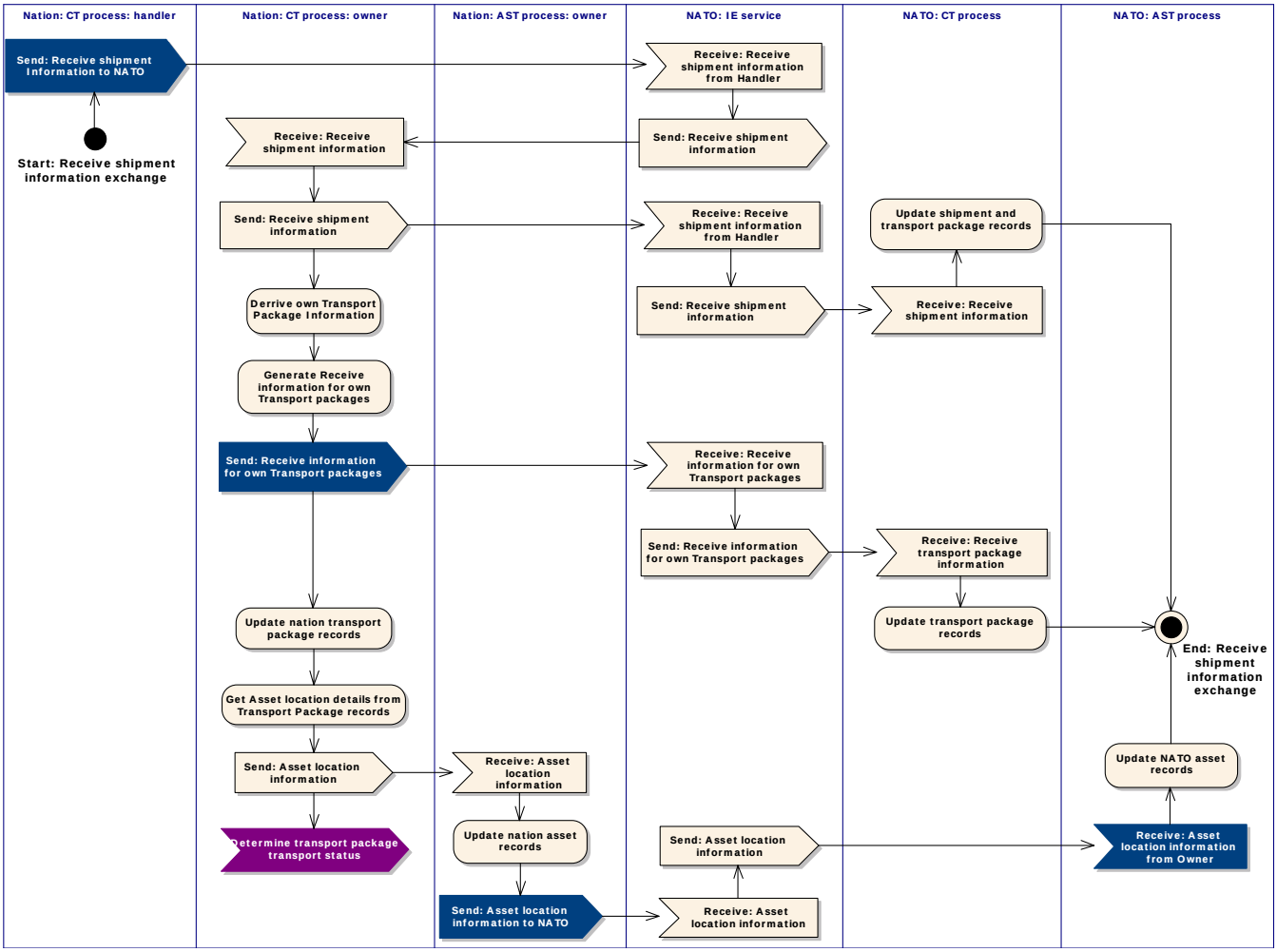


Figure 3-22 Receive Shipment Information Exchange

Each time a shipment is received a minimum set of information is to be exchanged with NATO or other participating nations.

Consolidate Transport Package

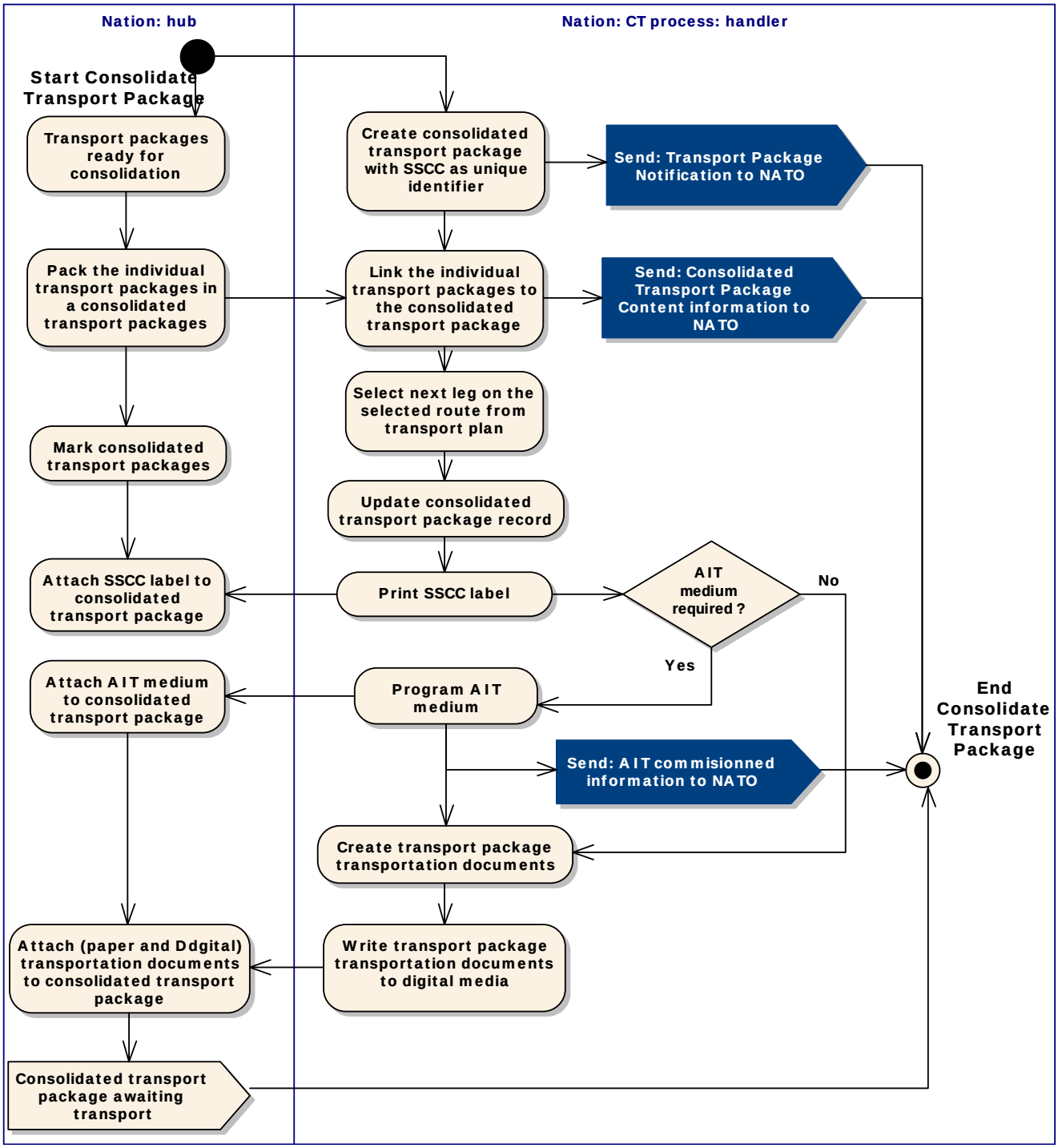


Figure 3-23 Consolidate Transport Package

This diagram depicts the minimum set of activities that need to be performed each time transport packages are consolidated into other transport packages.

Consolidate transport package information exchange

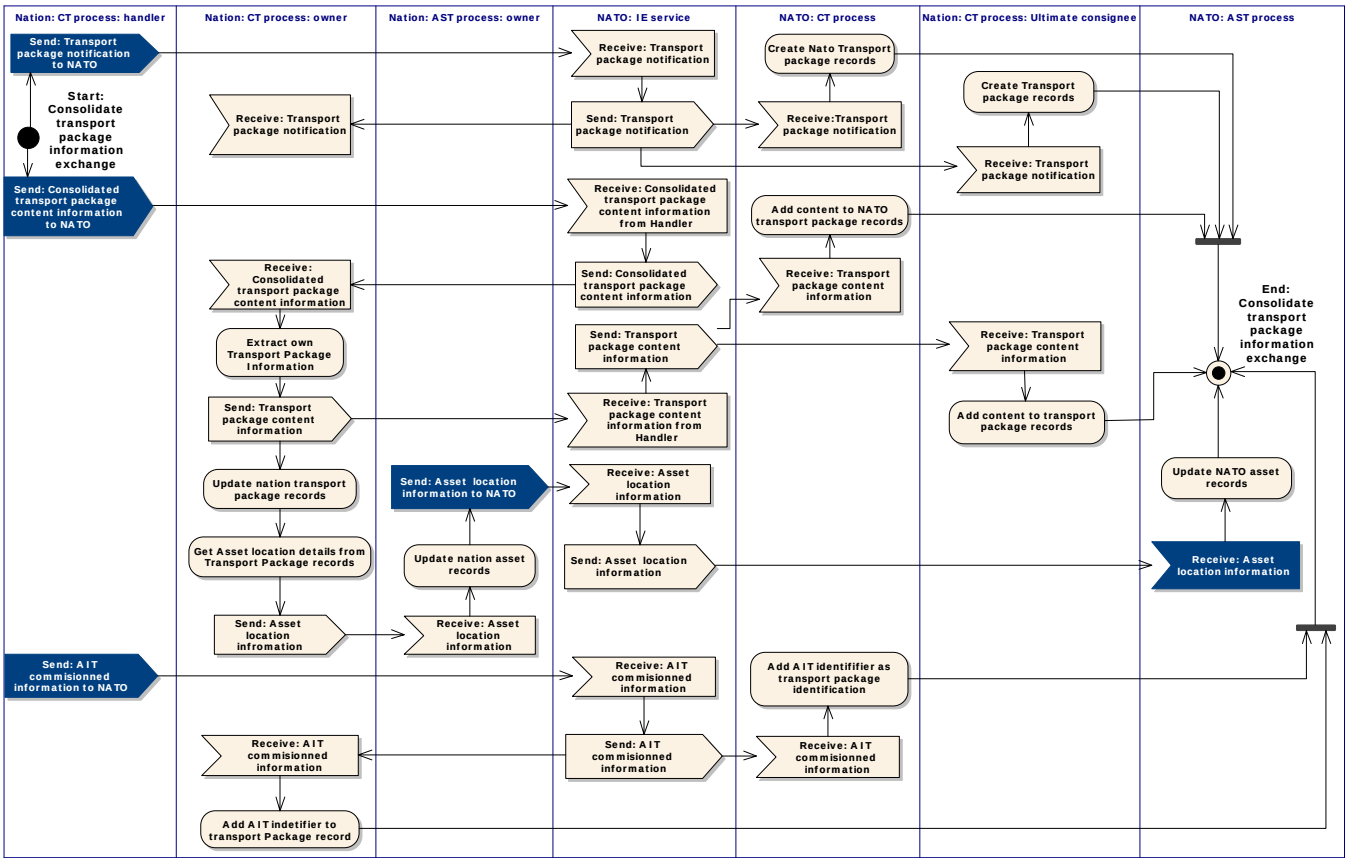


Figure 3-24 Consolidate Transport Package Information Exchange

Each time transport packages are consolidated into other transport packages a minimum set of information is to be exchanged with NATO or other participating nations.

The owner of a consolidated transport package is responsible for informing the owner of the transport package contained in the consolidated transport packages.

The owner of the contained transport packages are still responsible for informing NATO about their own transport packages contained in a consolidated transport package.

Report Shipment Progress

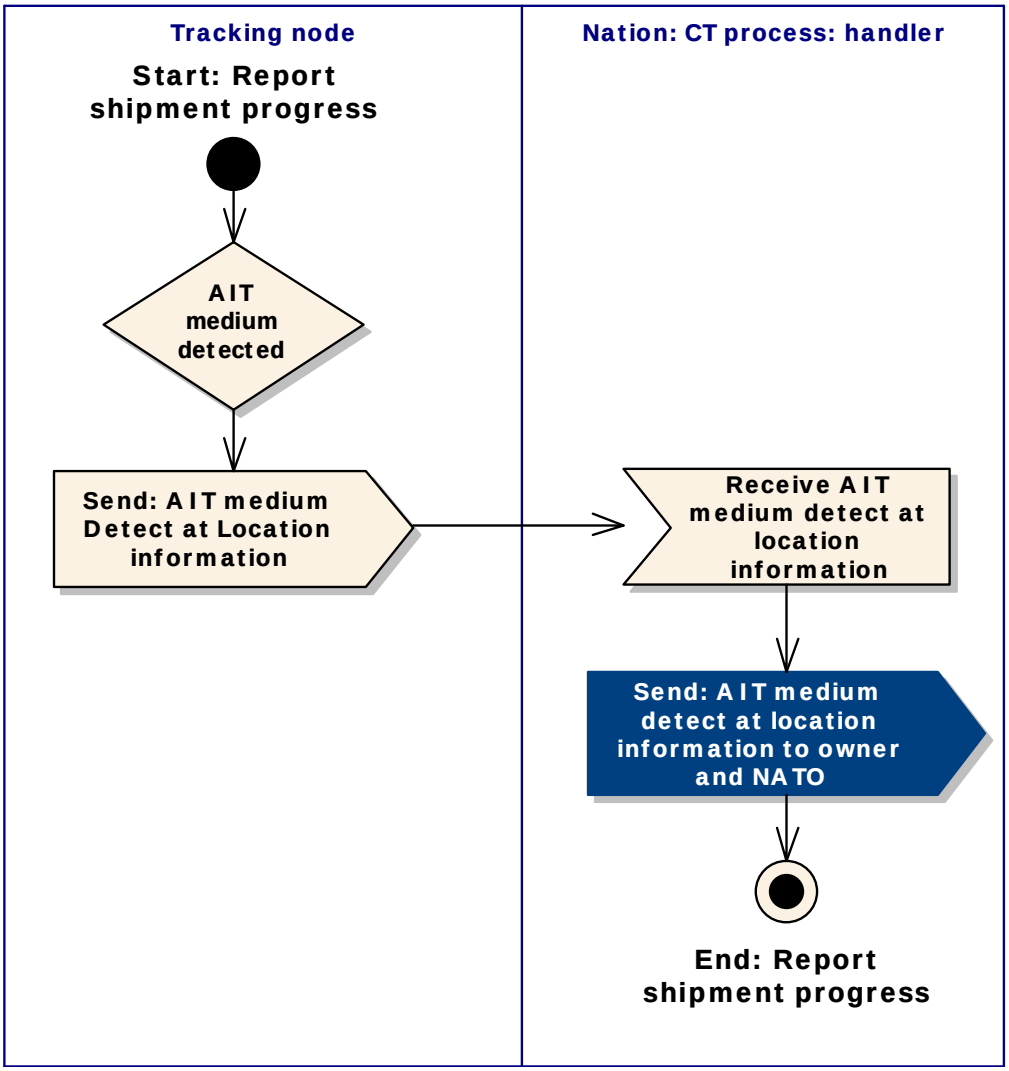


Figure 3-25 Report Shipment Progress

When a tracking node (barcodes or RFID) reads a transport package then this read event is to be shared with NATO and the nation that owns the transport package.

Report Shipment Progress Information Exchange

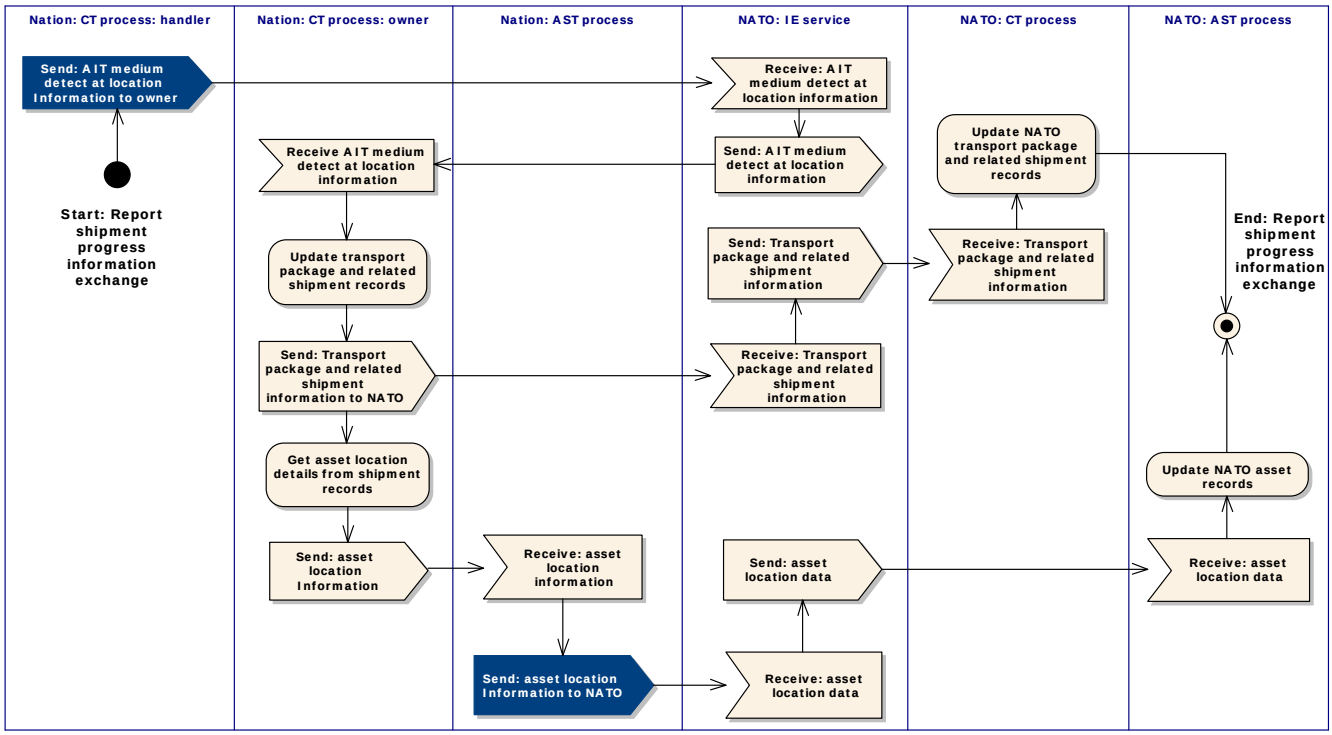


Figure 3-26 Report Shipment Progress Information Exchange

The reading of a transport package triggers a requirement for a minimum set of information to be exchanged with NATO and the nation that owns the transport package.

Deconsolidate Transport Package

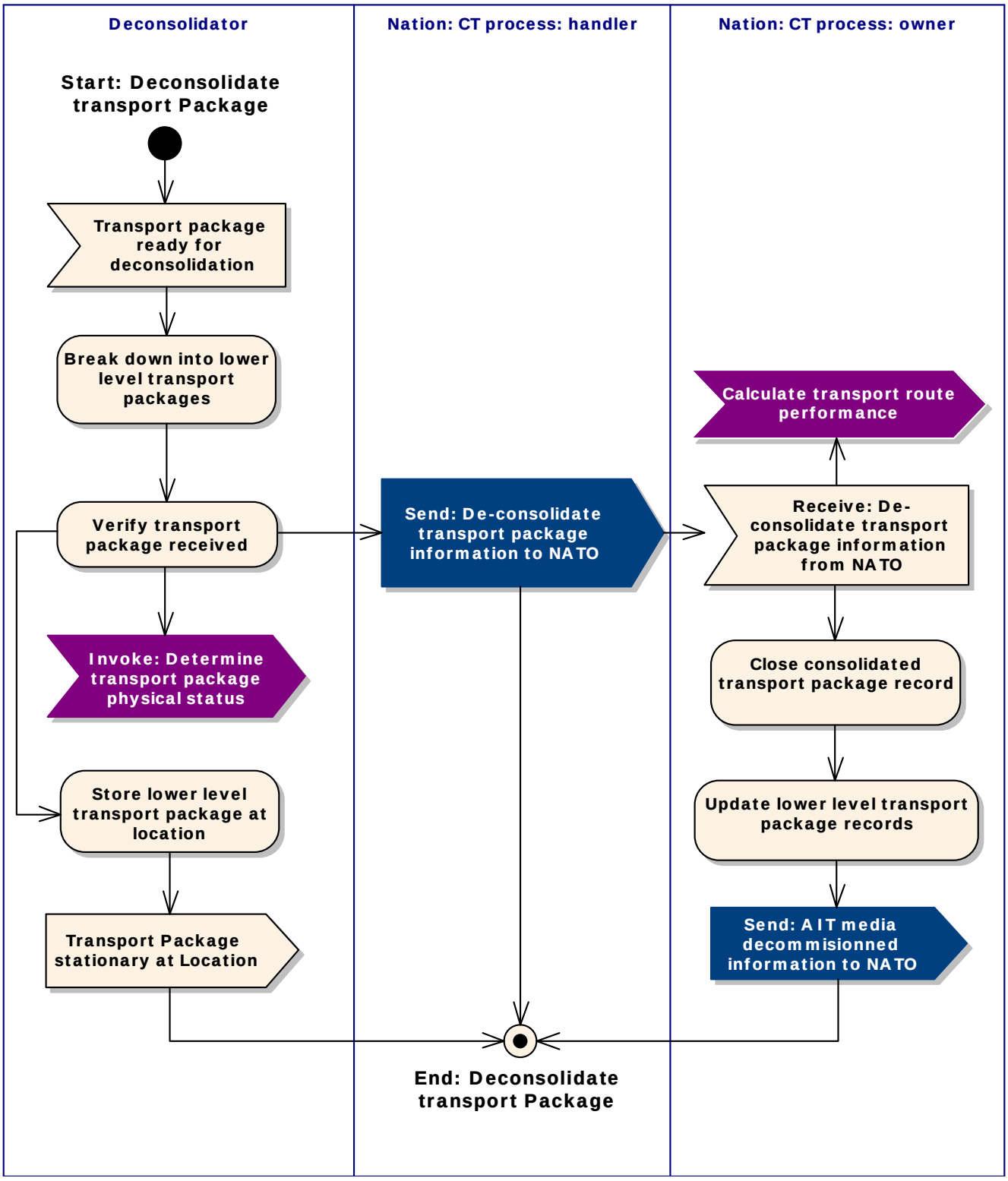


Figure 3-27 Deconsolidate Transport Package

This diagram depicts the minimum set of activities that need to be performed each time transport packages are deconsolidated into lower level transport packages.

Deconsolidate Transport Package Information Exchange

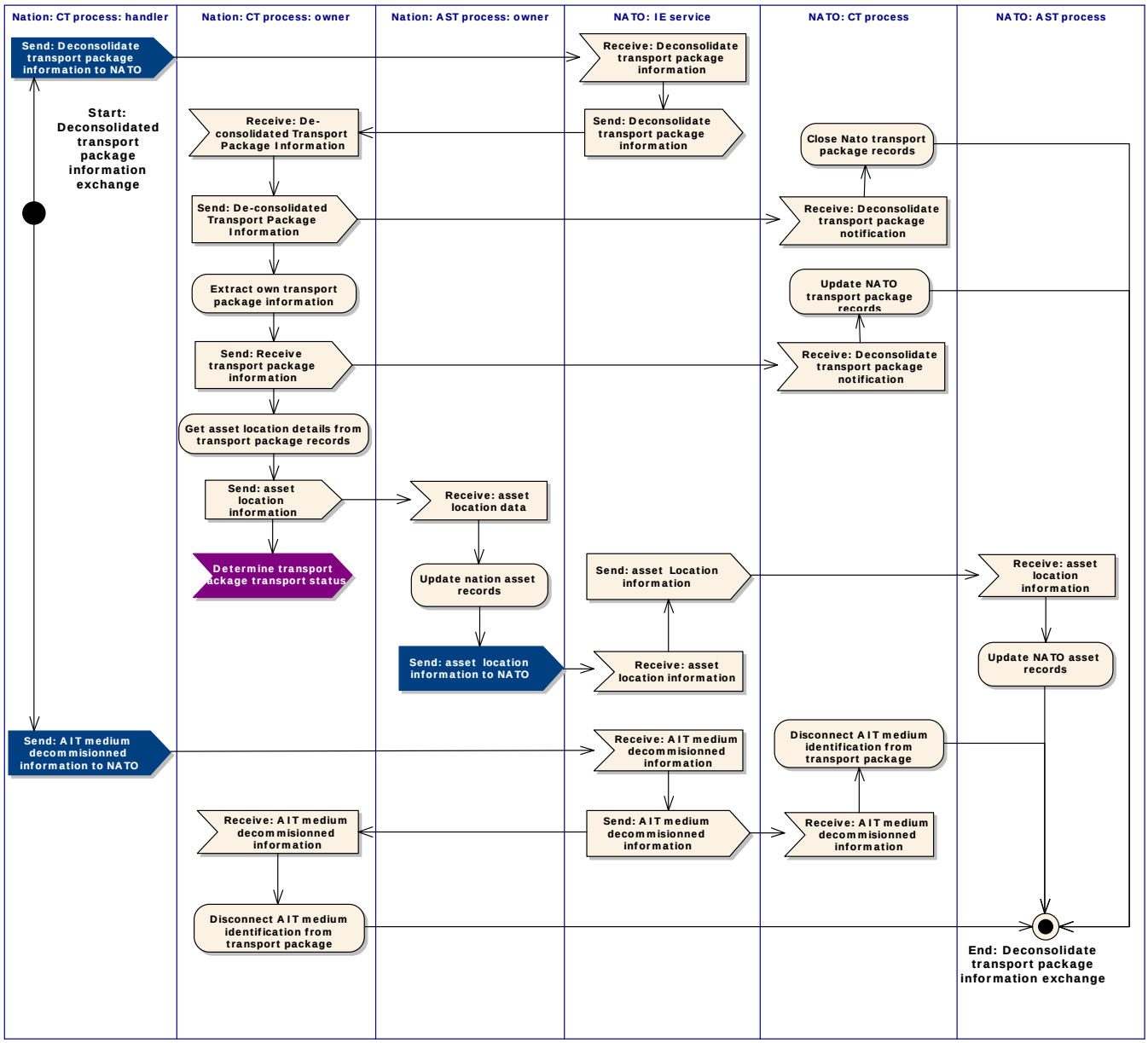


Figure 3-28 De-consolidate Transport Package Information Exchange

Each time transport packages are deconsolidated into lower level transport packages a minimum set of information is to be exchanged with NATO or other participating nations.

The owner of a consolidated transport package is responsible for informing the owner of the transport package contained in the consolidated transport packages.

The owner of the contained transport packages are still responsible for informing NATO about their own transport packages contained in a consolidated transport package.

Receive Consignment

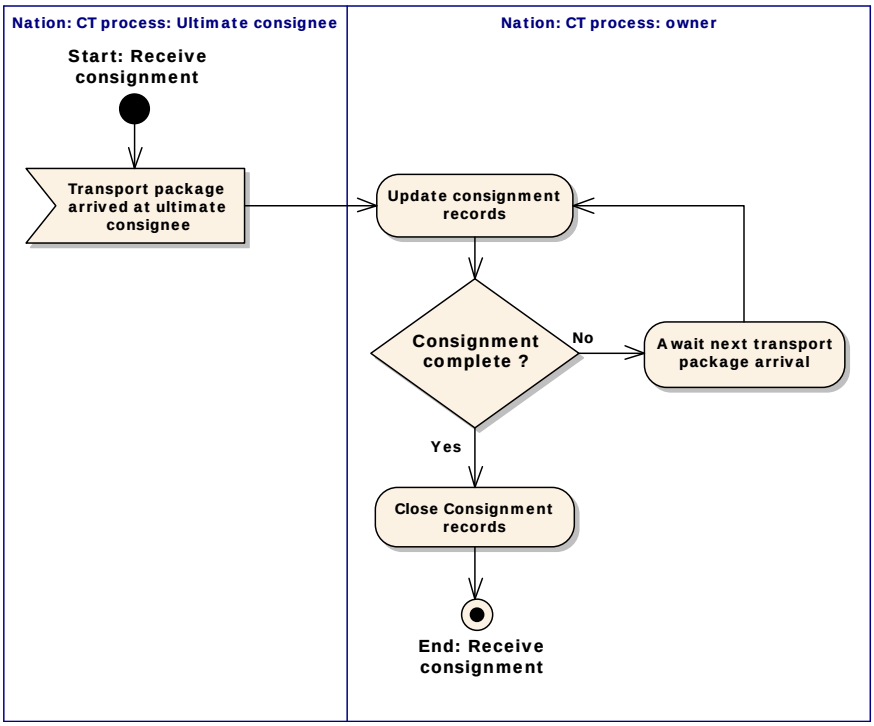


Figure 3-29 Receive Consignment

These are the activities to be performed by a nation when its consignment is received.

Receive Consignment Information Exchange

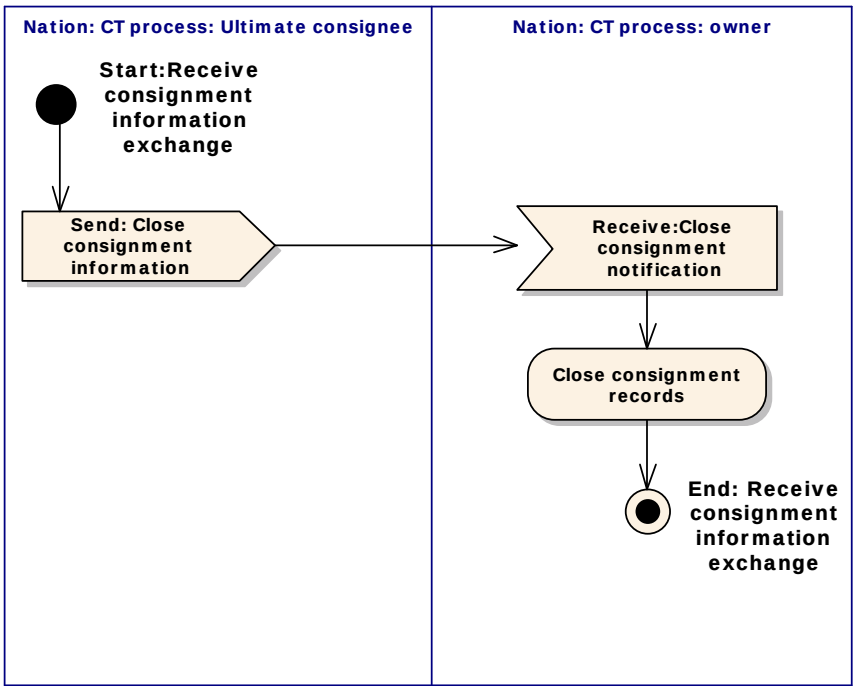


Figure 3-30 Receive Consignment Information Exchange

The required exchange of a minimum set of information based on activities to be preformed when a consignment is received is a nation's own responsibility. The information exchange is limited to the nation owning the consignment tracking process.

Receive Asset

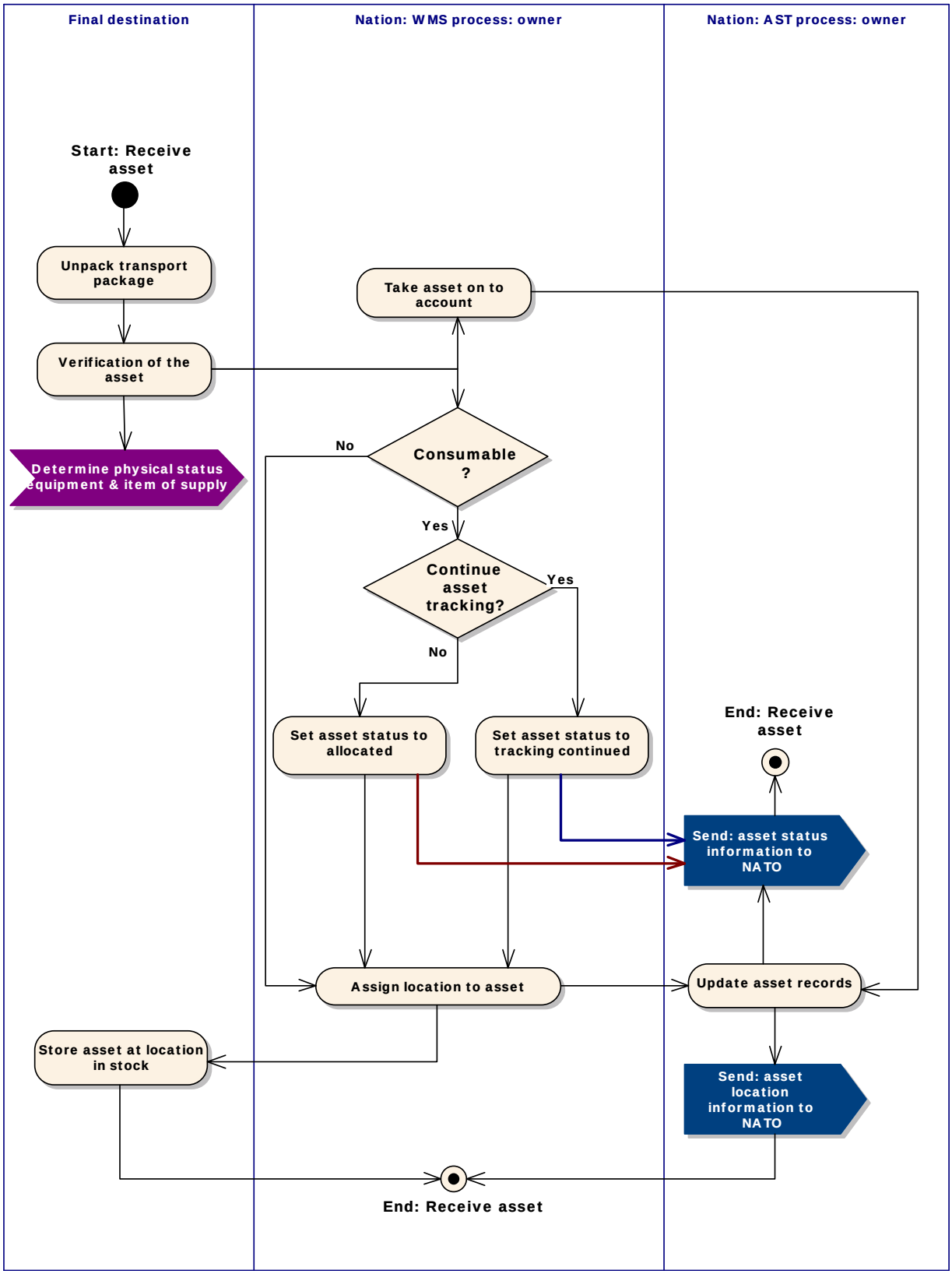


Figure 3-31 Receive Asset

This diagram depicts the minimum set of activities to be performed each time an asset is received at it final destination in the theatre of operations.

Receive Asset Information Exchange

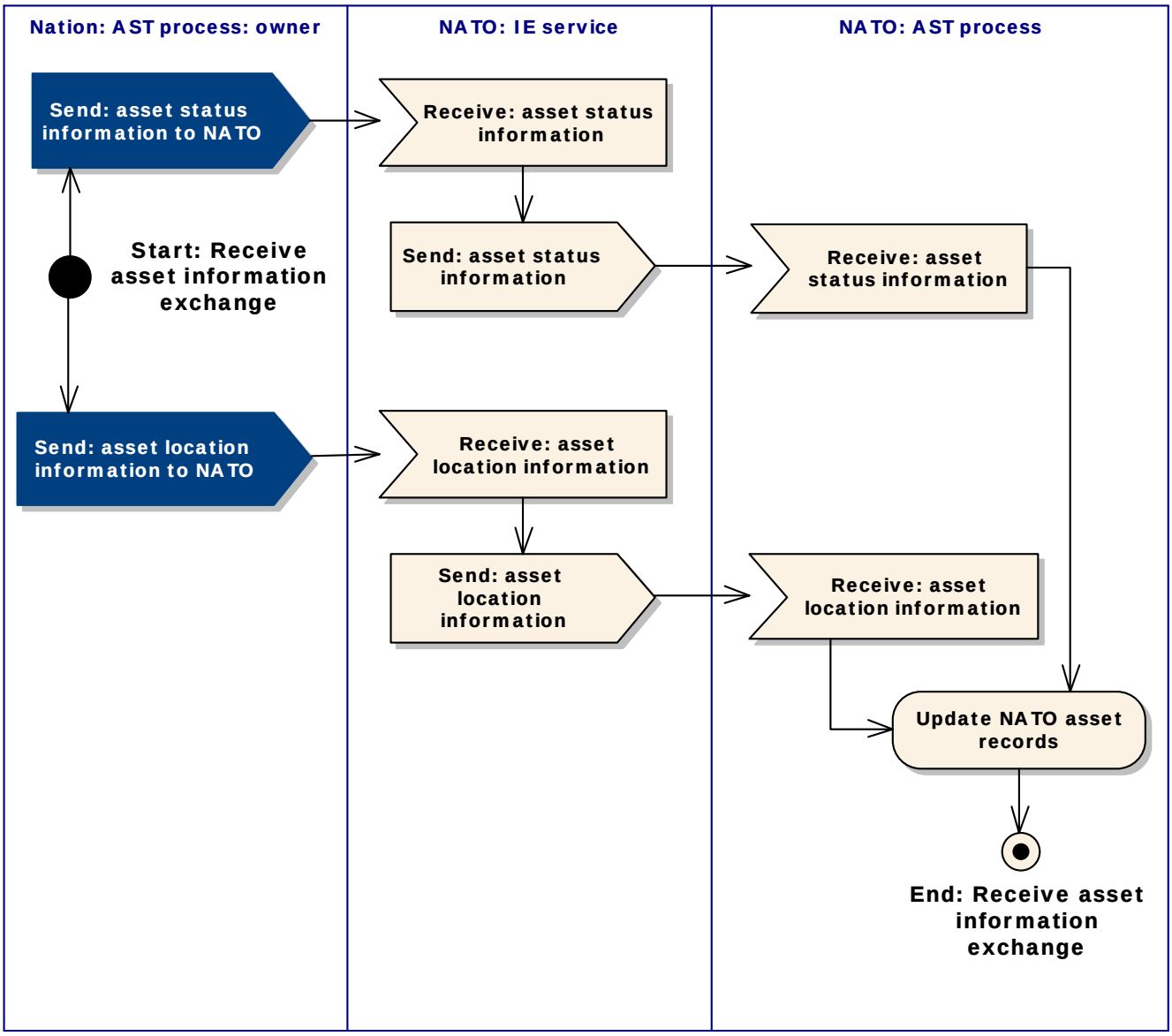


Figure 3-32 Receive Asset Information Exchange

Upon the receipt of an asset at a nation's location in the theatre of operations a minimum set of information is to be exchanged with NATO. The asset is now visible to the NATO commander.

Calculate Route Performance

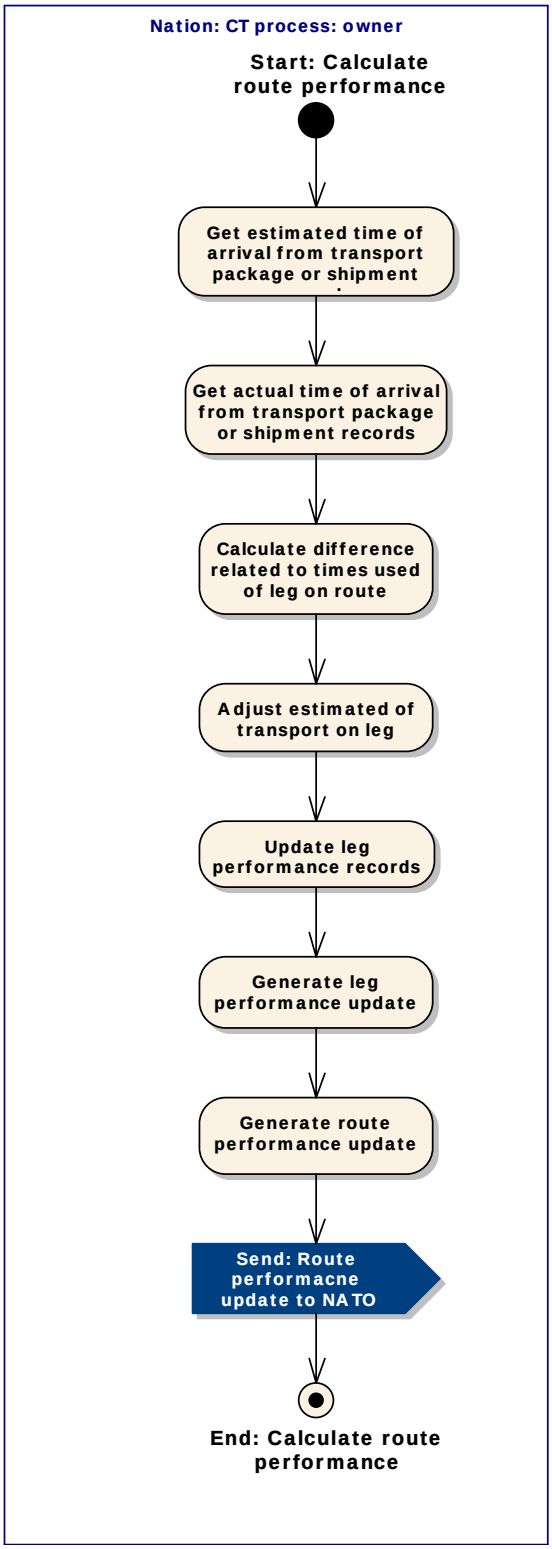


Figure 3-33 Calculate Route Performance

See paragraph 204 for activities to calculate route and leg performance

Route Performance Information Exchange

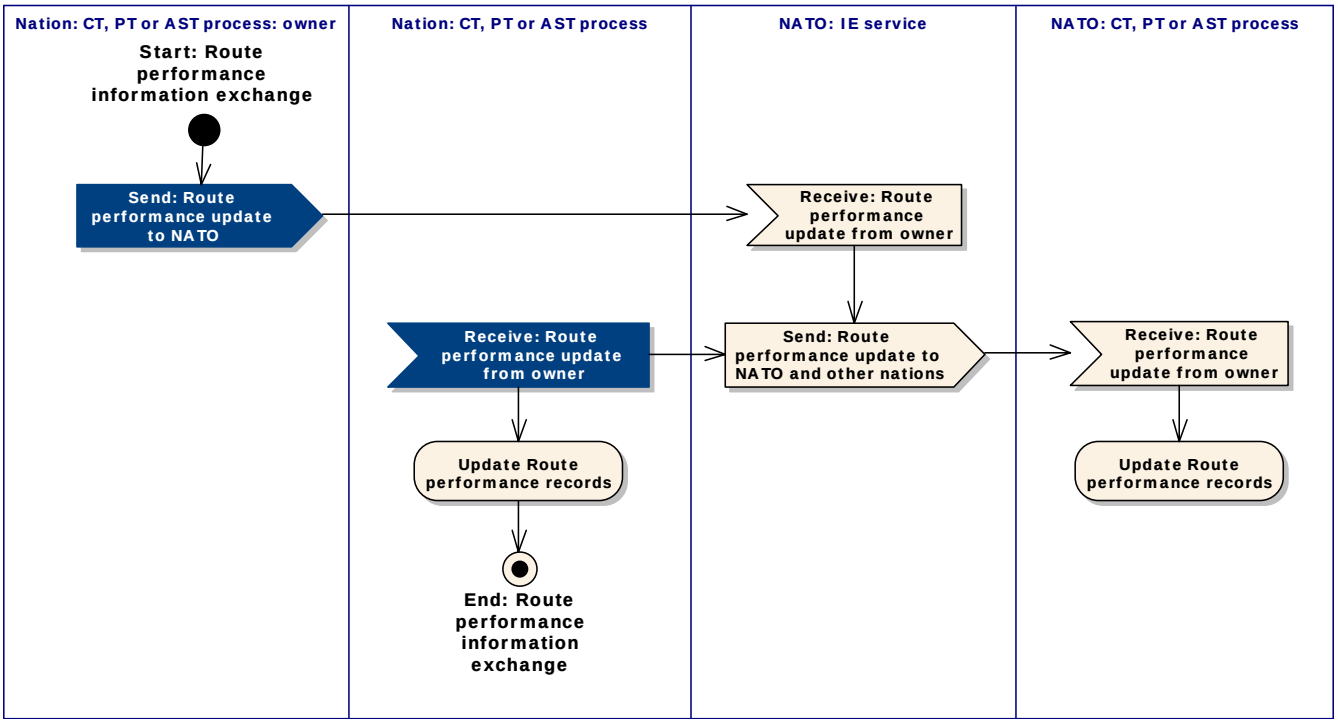


Figure 3-34 Route Performance Information Exchange

If the route performance is calculated the information needs to be exchanged with relevant other processes so that the information is available to others for planning purposes.

0307 Personnel Tracking

Create Unit Contribution

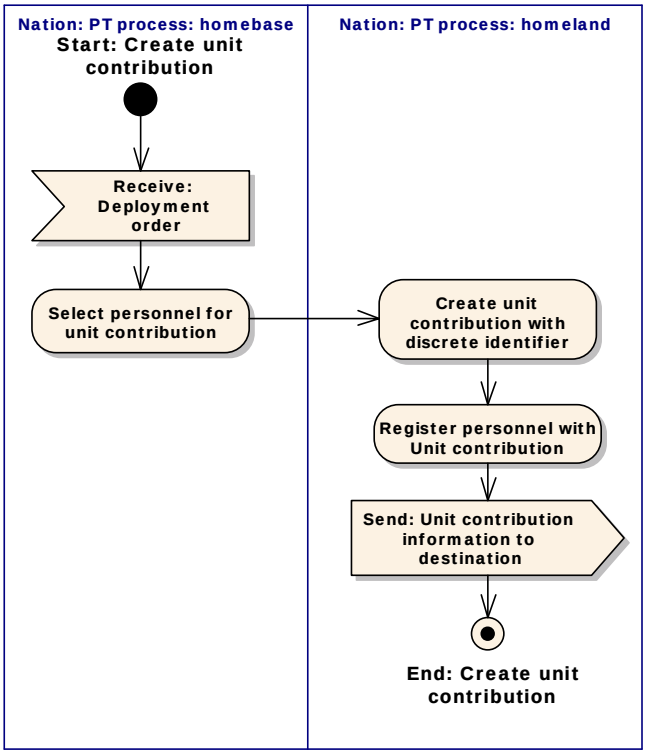


Figure 3-35 Create Unit Contribution

For the purpose of process mapping, a unit contribution can be considered in the same manner as a consignment. It represents a logical grouping for a group of personnel being transported to the theatre of operations.

Create Unit Contribution Information Exchange

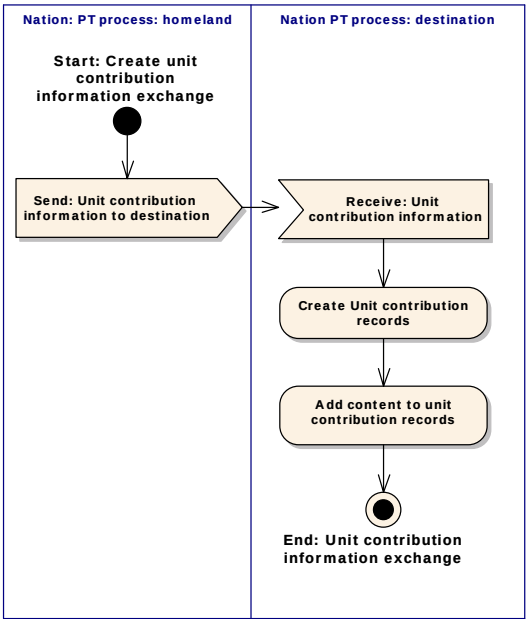


Figure 3-36 Create Unit Contribution Information Exchange.

The exchange of information for a unit's contribution is a nation's responsibility. The minimum requirement to be exchanged is a nation code and national personnel identifier linked to a unit contribution identifier (representing a logical grouping for a group of personnel being transport to the theatre of operations).

Create Shipment of Personnel

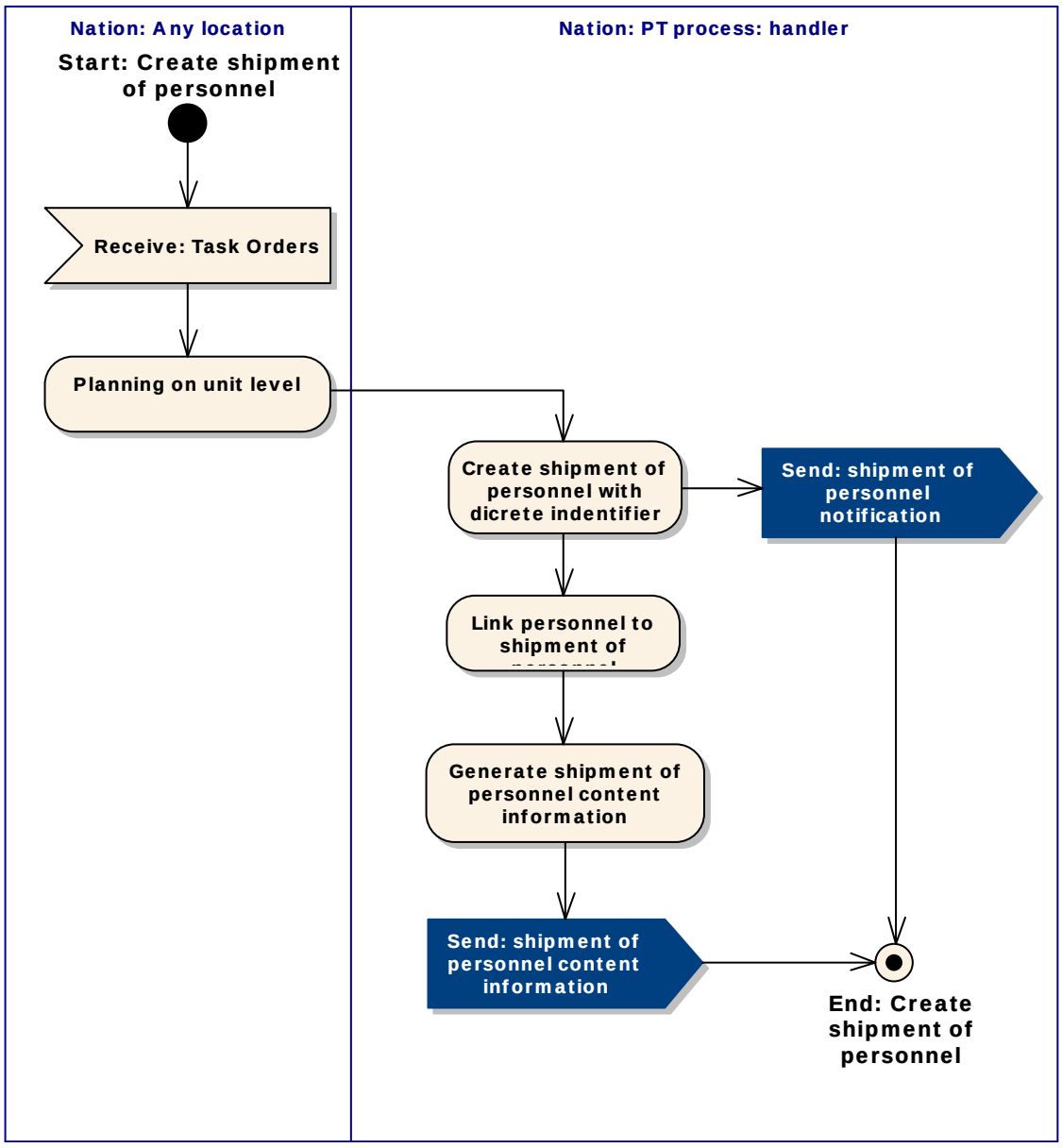


Figure 3-37 Create Shipment of Personnel

This diagram depicts the minimum set of activities to be performed when a shipment of personnel is created to be shipped from one location to the next on a route.

Create Shipment of Personnel Information Exchange

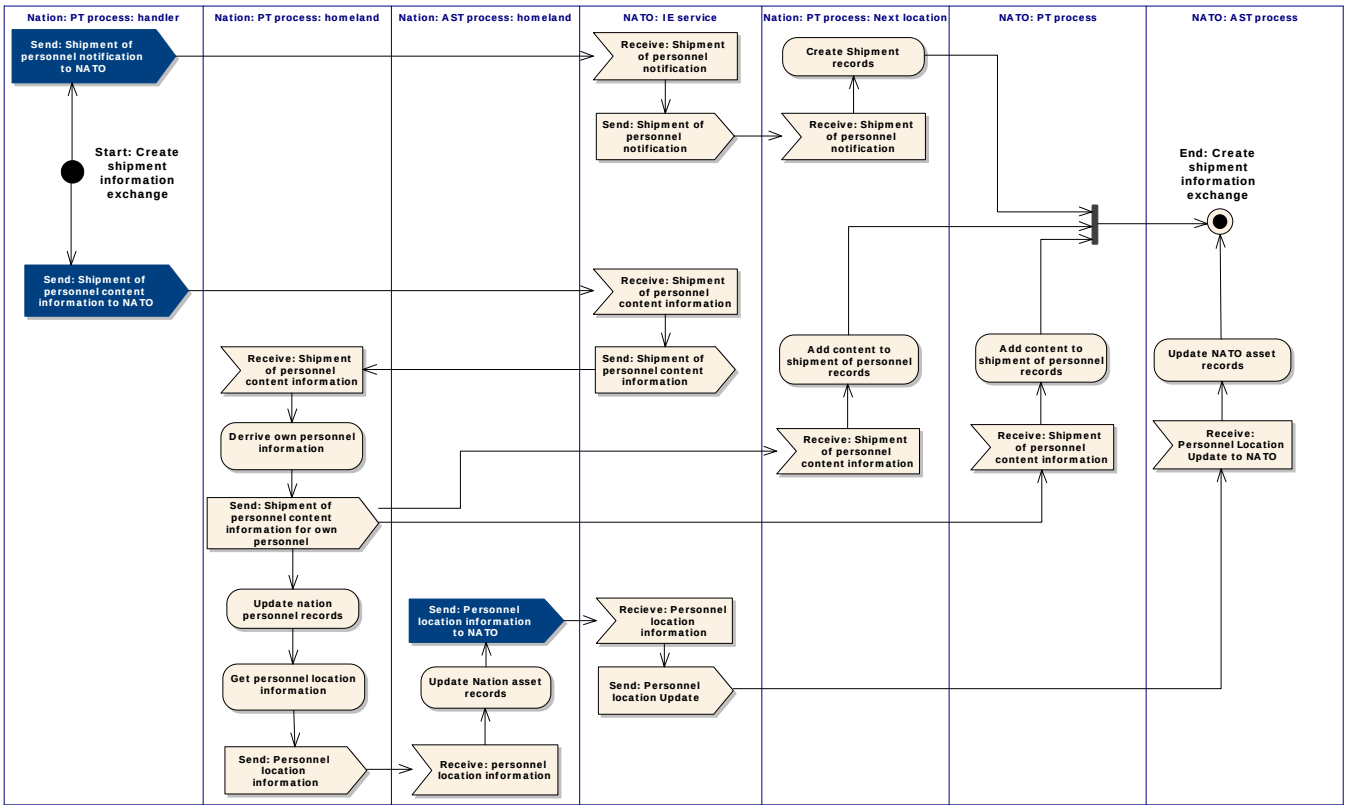


Figure 3-38 Create Shipment of Personnel Information Exchange

Each time a shipment of personnel is created a minimum set of information is to be exchanged with NATO and other nations if deemed necessary.

The next location only needs to be informed if this location is operated by another nation.

Despatch Shipment of Personnel

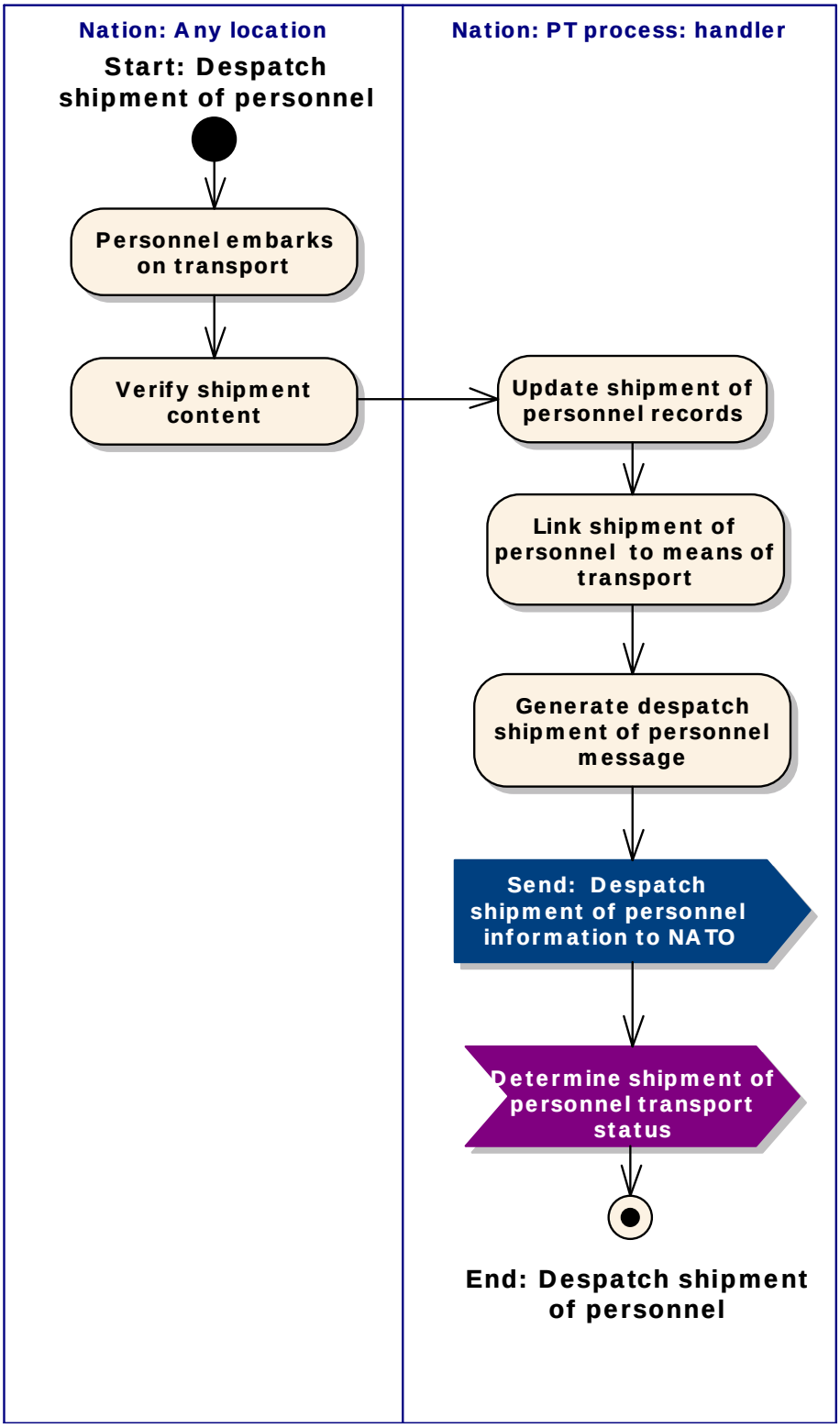


Figure 3-39 Despatch Shipment of Personnel

This diagram depicts the minimum set of activities to be performed when a group of personnel is despatched to the next location on a route.

Despatch Shipment of Personnel Information Exchange

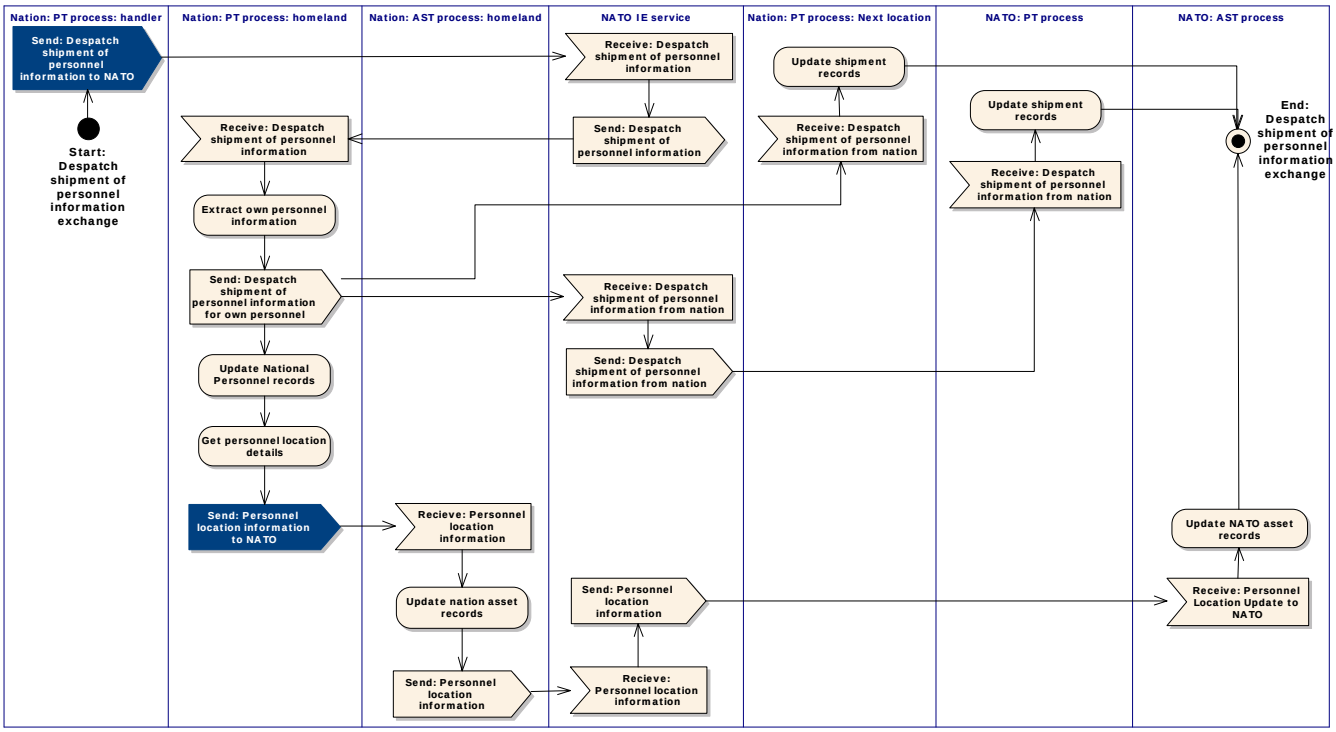


Figure 3-40 Despatch Shipment of Personnel Information Exchange

Each time a shipment of personnel is despatched a minimum set of information is to be exchanged with NATO and other nations if deemed necessary.

Receive Shipment of Personnel

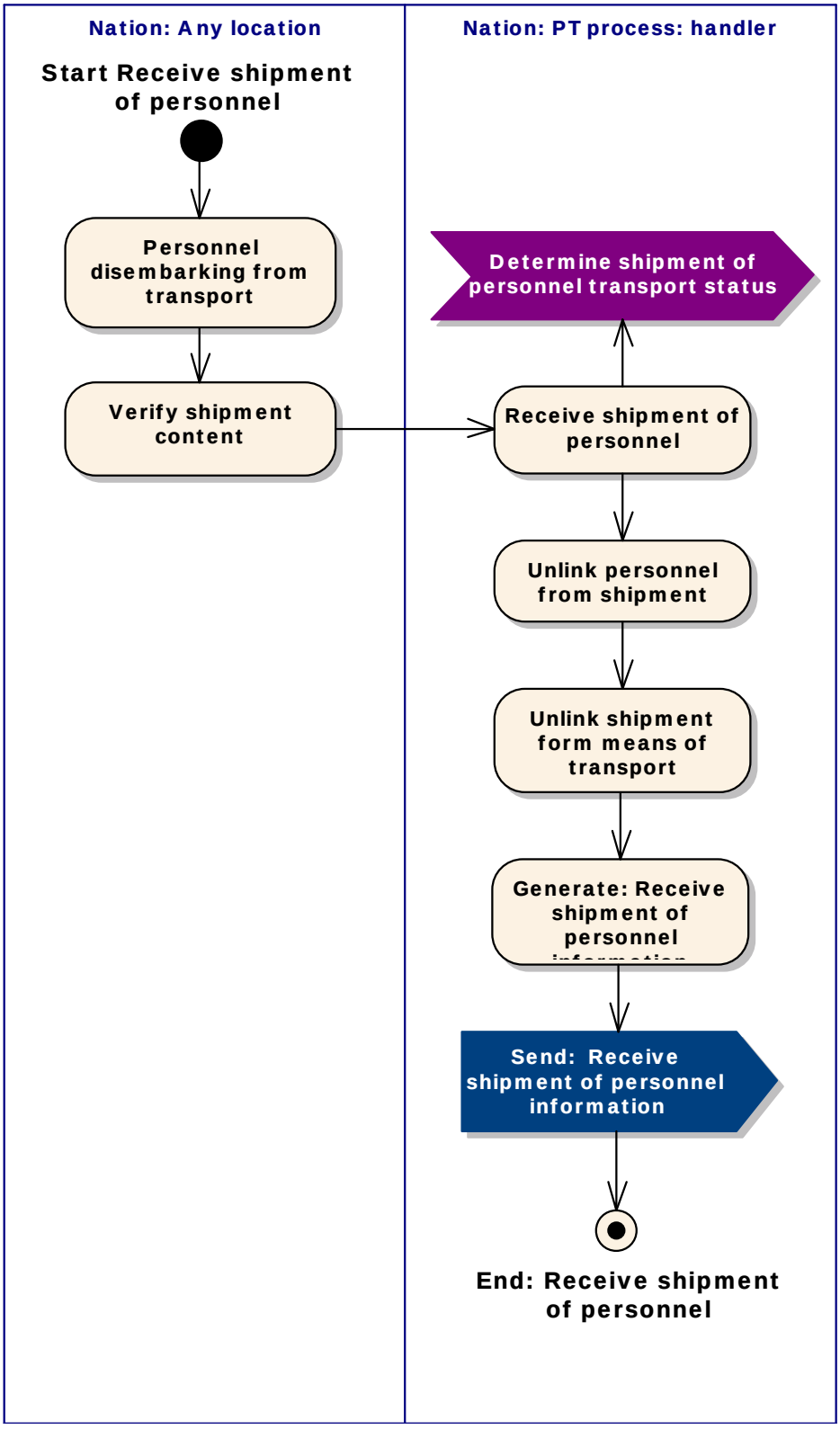


Figure 3-41 Receive Shipment of Personnel

This diagram depicts the minimum set of activities to be performed when a group of personnel is received at the next location on a route.

Receive Shipment of Personnel Information Exchange

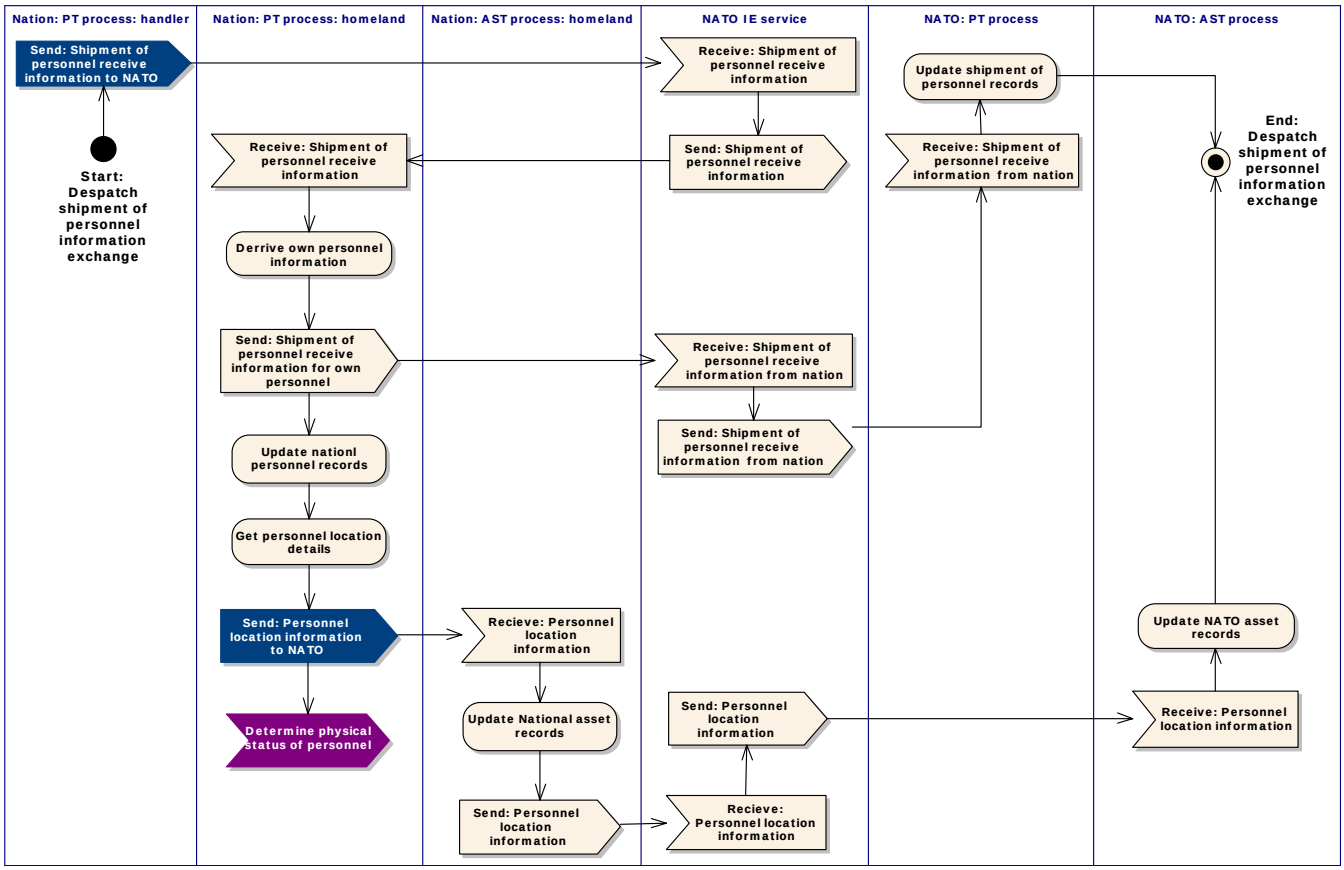


Figure 3-42 Receive Shipment of Personnel Information Exchange

Each time a shipment of personnel is received a minimum set of information is to be exchanged with NATO and other nations if deemed necessary.

Report Progress of Shipment of Personnel

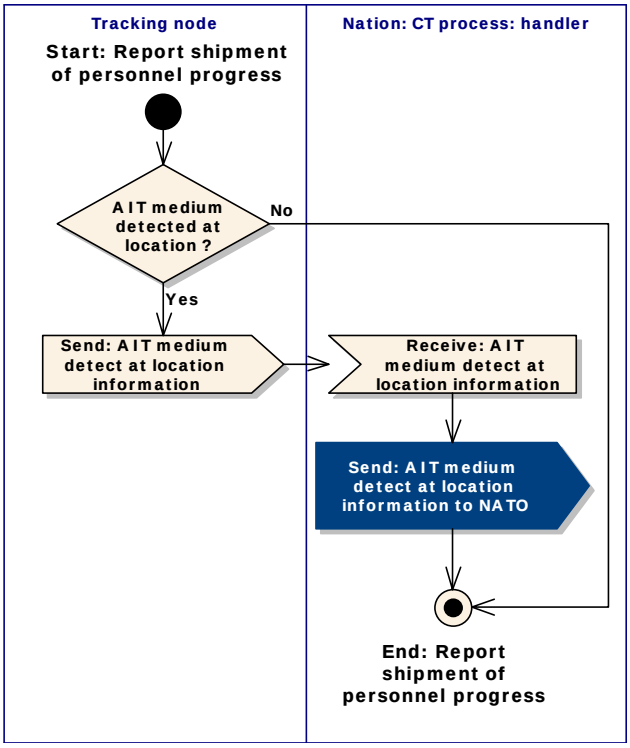


Figure 3-43 Report Progress of Shipment of Personnel

This diagram depicts the minimum set of activities to be performed when a shipment of personnel is detected by a tracking node.

Report Progress of Shipment of Personnel Information Exchange

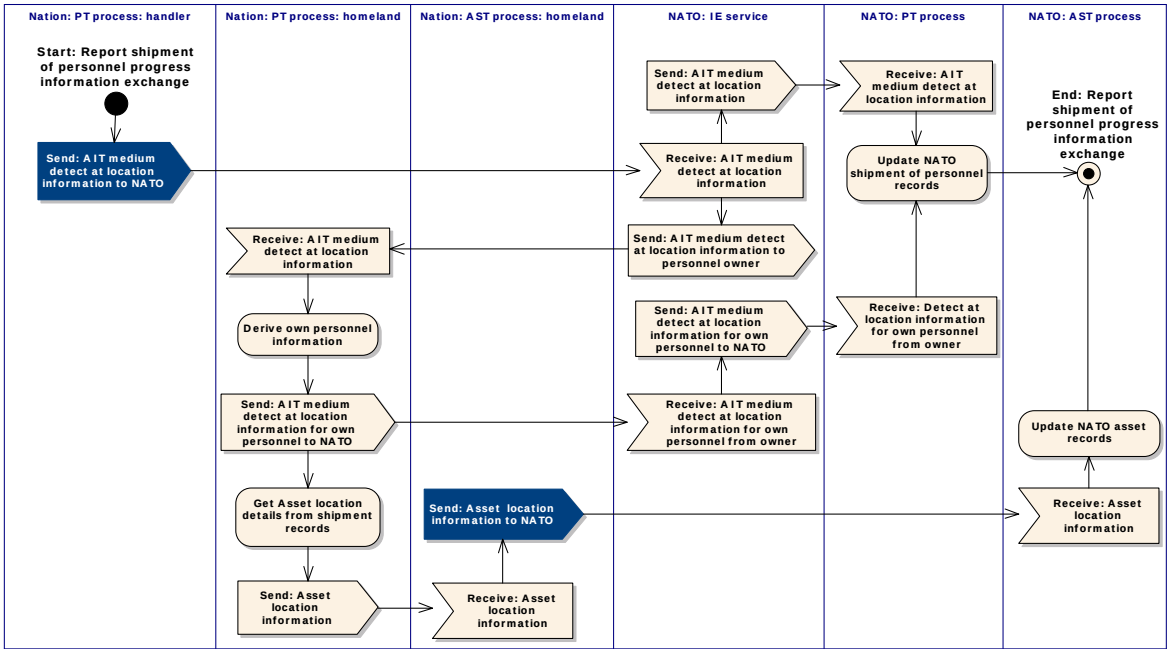


Figure 3-44 Report Progress of Shipment of Personnel Information Exchange

When a shipment of personnel is detected by a tracking node a minimum set of information is to be exchanged with NATO and or other nations if deemed necessary.

0308 Asset Tracking Information Reporting

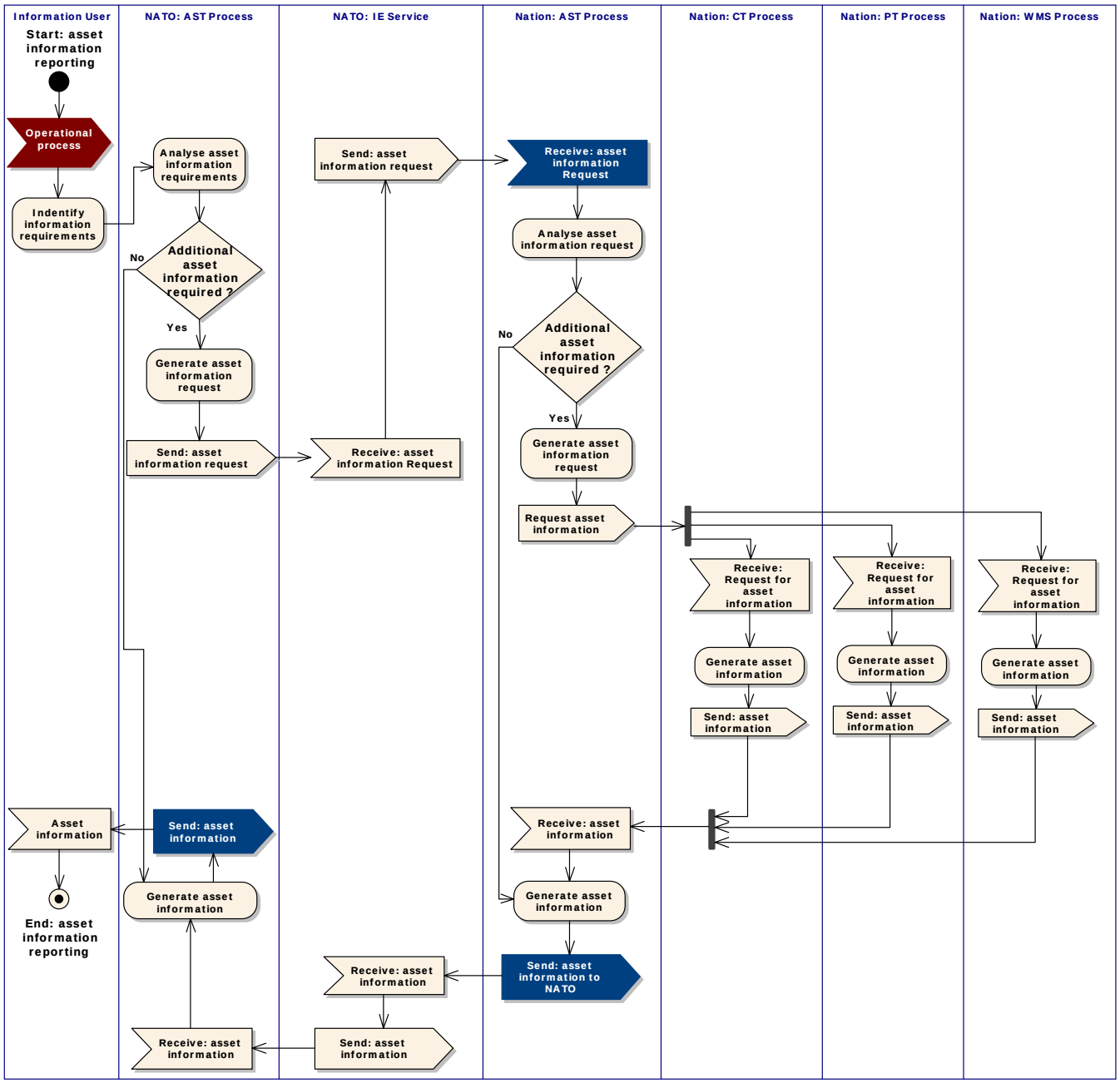


Figure 3-45 Asset Tracking Information Reporting

All information gathered by this business process model can be reported using asset information reporting.

The minimum requirements are to report asset license plate information only.

Additional detail on asset or shipment or transport packages can be requested under the condition that there is an agreement to share that level of detail between two participating nations and or NATO.

0309 Determine Transport Status

Determine Equipment and Item of Supply Transport Status

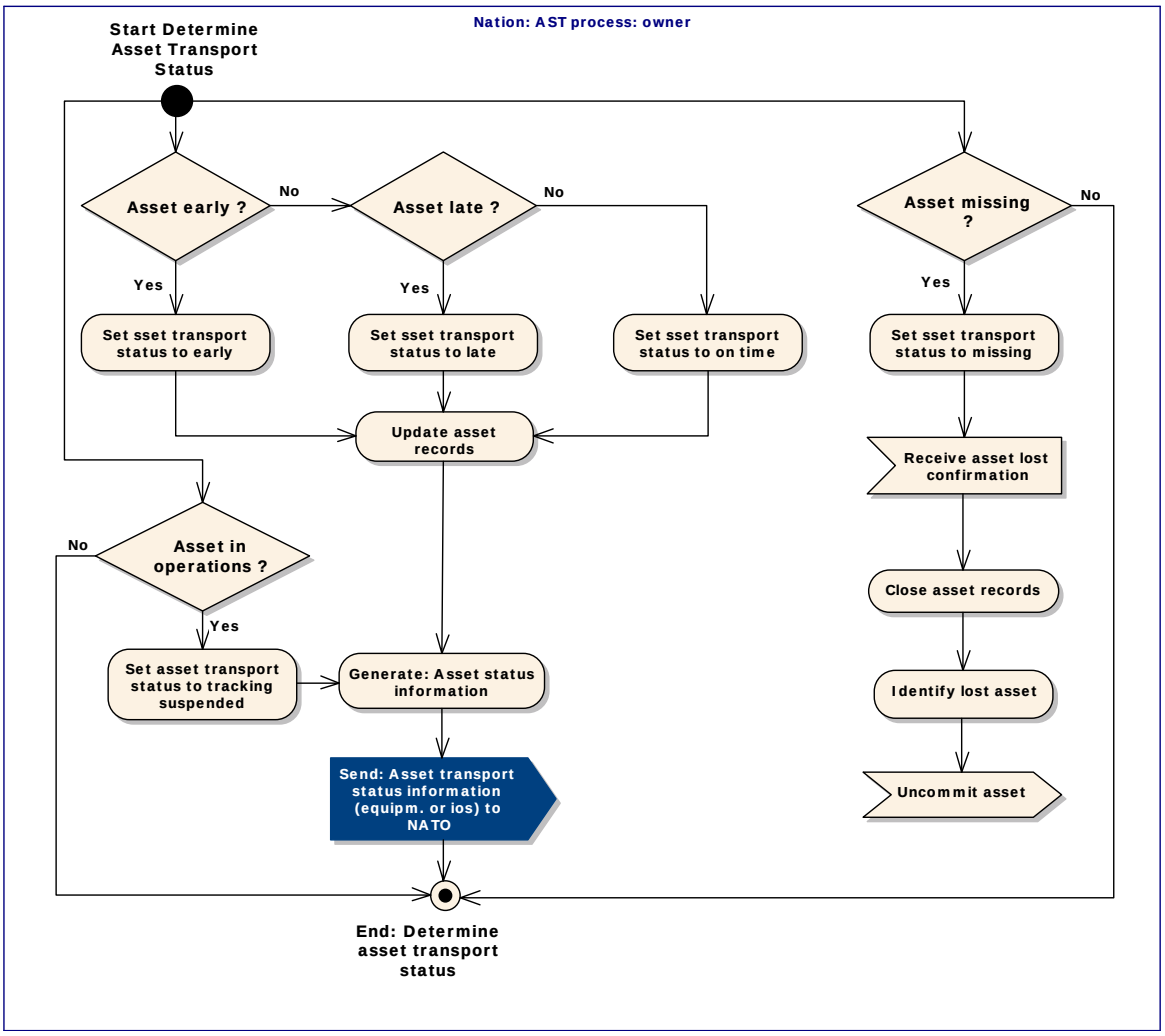


Figure 3-46 Determine Equipment and Item of Supply Transport Status

Equipment and or Items of Supply can have the following transport status:

1 Late

The equipment or item of supply will not meet its ETA at the next CT node.

2 On time

The equipment or item of supply is expected to meet its ETA at the next CT node.

3 Early

The equipment or item of supply is expected to reach its next CT node earlier than its planned time of arrival or ETA.

4 Missing

The equipment or item of supply has been missing and tracing action is under way.

5 Delivered (the status after a receive asset process)

The equipment or item of supply has been delivered to the consignee.

6 Lost

The equipment or item of supply has been missing and tracing action has confirmed that it is irrevocably lost.

Determine Transport Package Transport Status

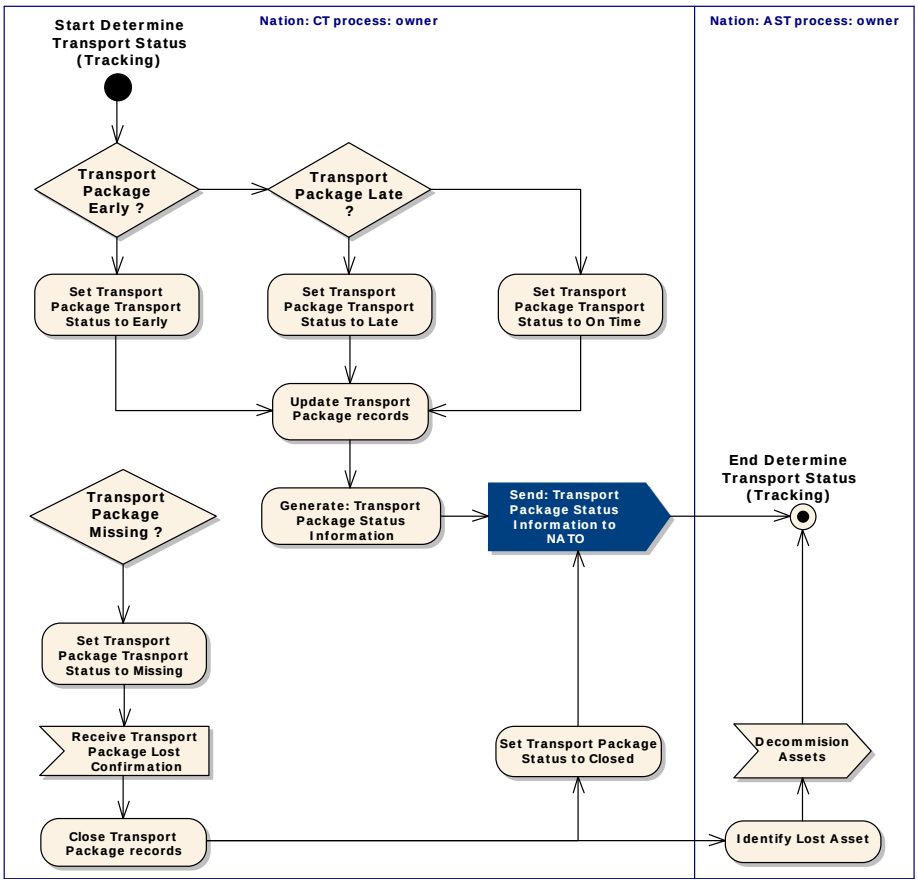


Figure 3-47 Determine Transport Package Transport Status

Transport packages can have the following transport status:

1 Late

The transport package will not meet its ETA at the next CT node.

2 On time

The transport package is expected to meet its ETA at the next CT node.

3 Early

The transport package is expected to reach its next CT node earlier than its planned time of arrival or ETA.

4 Missing

The transport package has been missing and tracing action is under way.

5 Delivered (the status after a receive asset process)

The transport package has been delivered to the consignee.

6 Lost

The transport package has been missing and tracing action has confirmed that it is irrevocably lost.

7 Await further instructions (See figure 3-49 Transport package physical status)

The transport package is damaged; the handler is awaiting further instructions from the owner.

This transport status is a result of the handling of the above physical statuses.

8 Closed

The transport package was received at the ultimate consignee is closed and is no longer tracked

Determine Personnel Transport Status

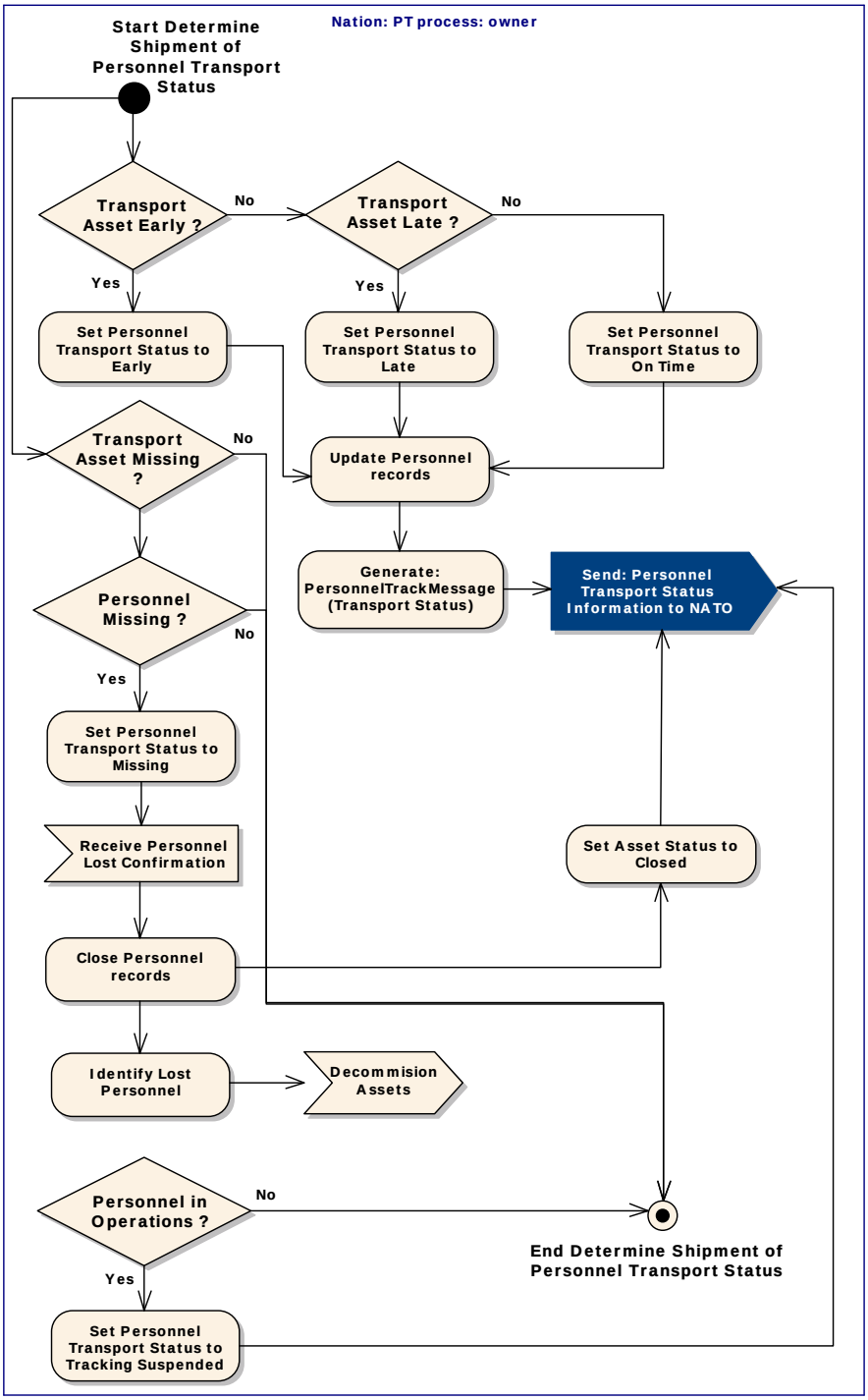


Figure 3-46 Determine Personnel Transport Status

Shipments of Personnel can have the following status:

1 Missing

The person has been missing and tracing action is under way.

2 Lost

The person has been missing and tracing action has confirmed that they are irrevocably lost.

3 Found

A person was missing or lost but has been found again by the personnel tracking process.

Transport Status Information Exchange

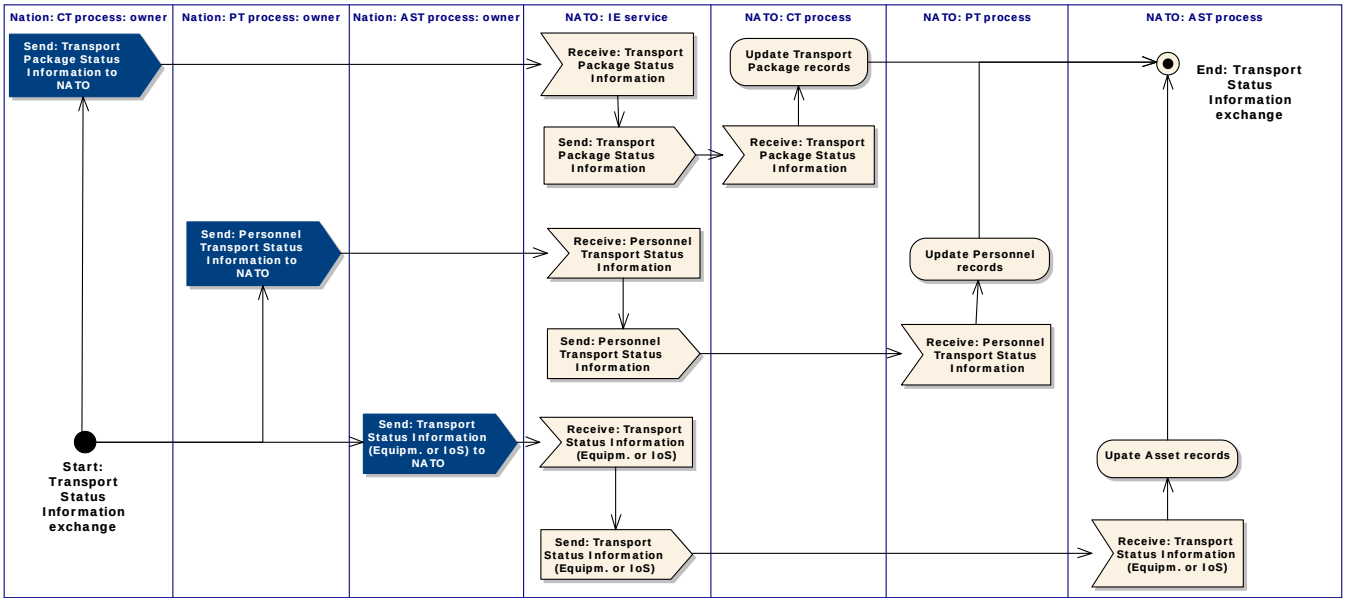


Figure 3-49 Transport Status Information Exchange

When a change in transport status occurs the information is to be exchanged with NATO or other nations if deemed necessary.

0310 Determine Physical Status

Determine Physical Status of Equipment and Item of Supply

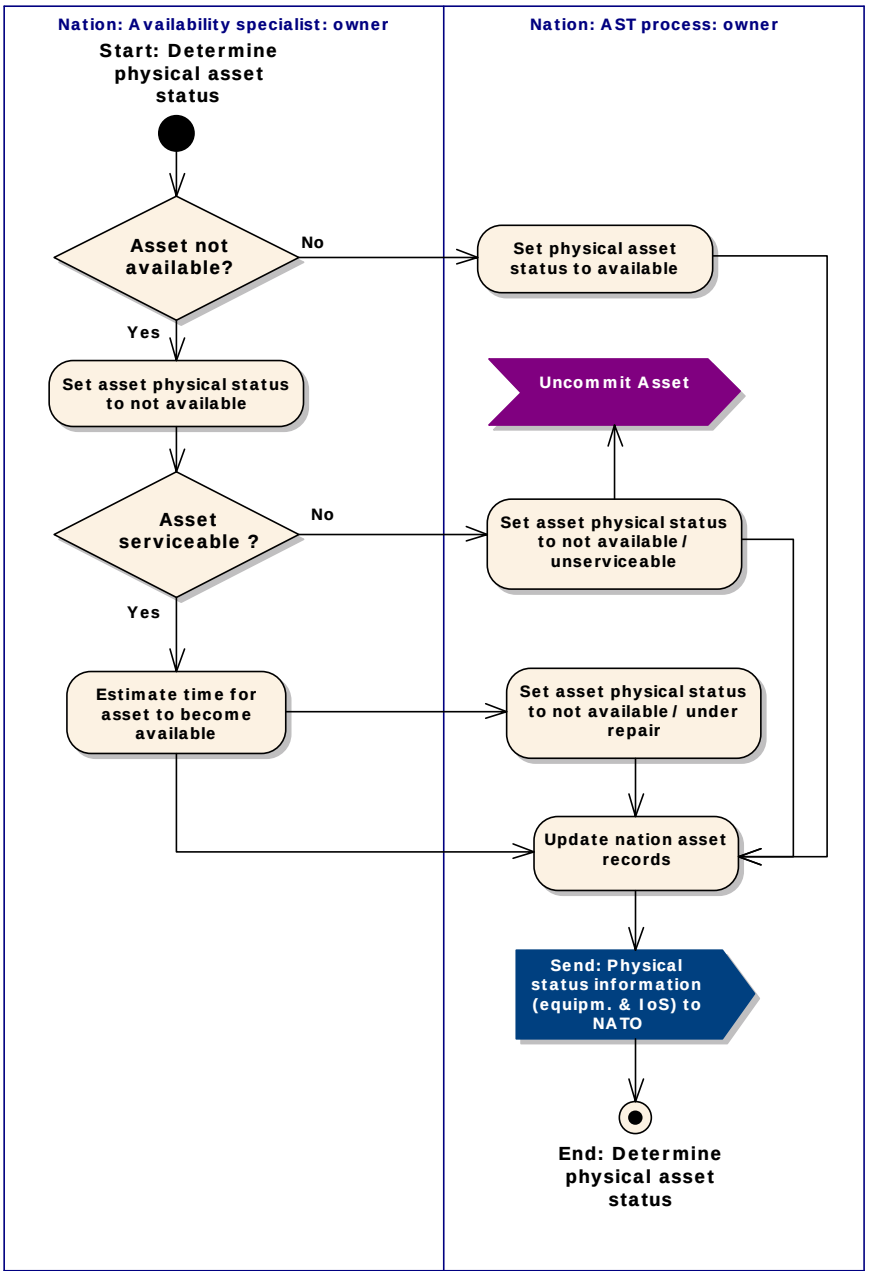


Figure 3-50 Determine Physical Status of Equipment and Item of Supply

Equipment and or Items of Supply can have the following physical status:

1 Available
The equipment or item of supply has not been damaged.

2 Not available
The equipment or item of supply has been damaged.

3 Unserviceable
The equipment or item of supply cannot be repaired of serviced in the theatre of operations

4 Under repair
The equipment or item of supply is under repair in the theatre of operations

Determine Physical Status Transport Package

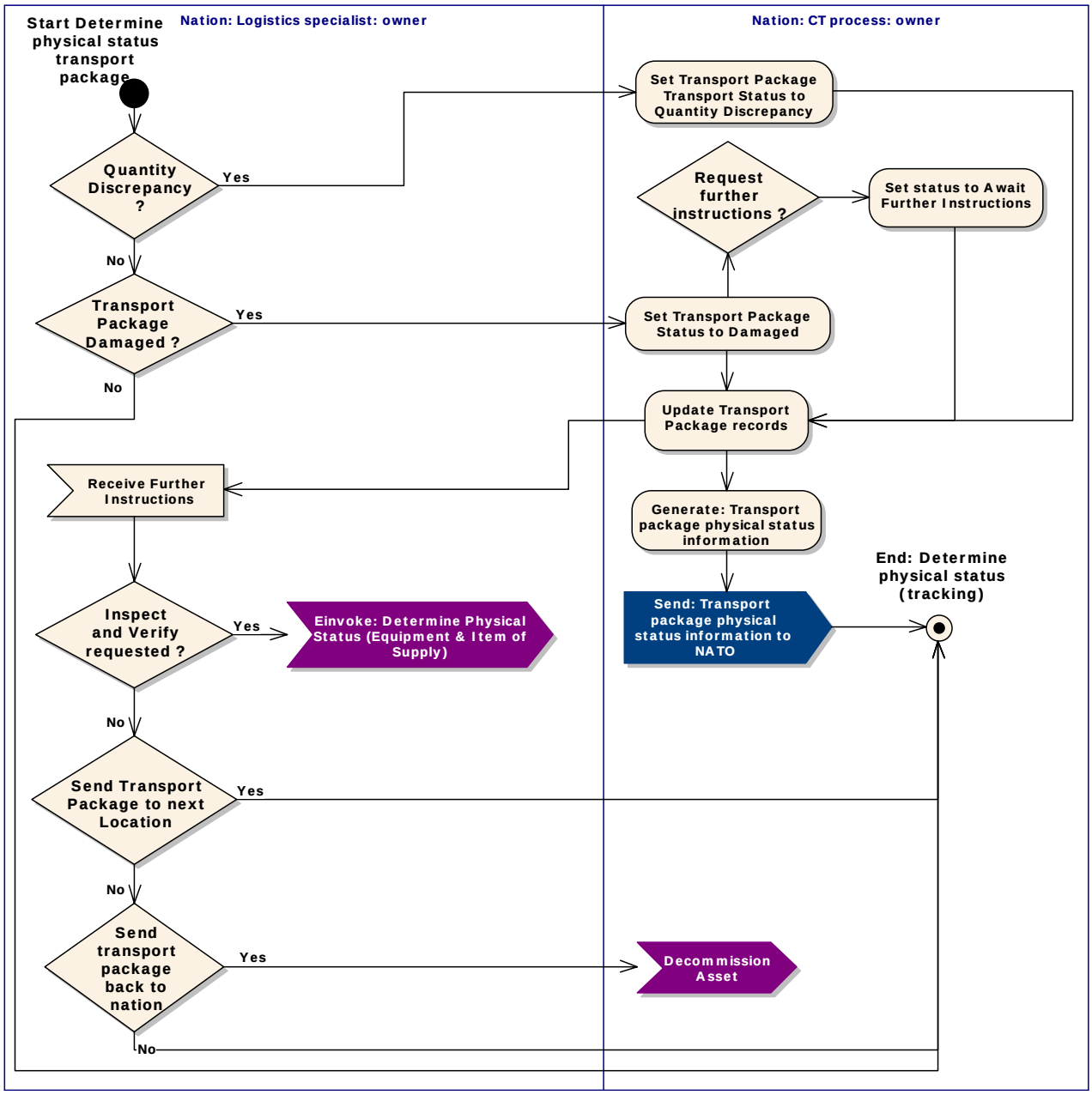


Figure 3-51 Determine Physical Status of Transport Package

Transport Packages can have the following physical or transport status:

1 Damaged

The transport package has been damaged.

2 Quantity discrepancy

2a Correct

The transport package content is completely received.

2b Incorrect

The transport package content is not complete

3 Await further instructions (Transport Status)

The transport package is damaged; the handler is awaiting further instructions from the owner. This transport status is a result of the handling of the above physical statuses.

Determine Physical Status Personnel (Patient Tracking)

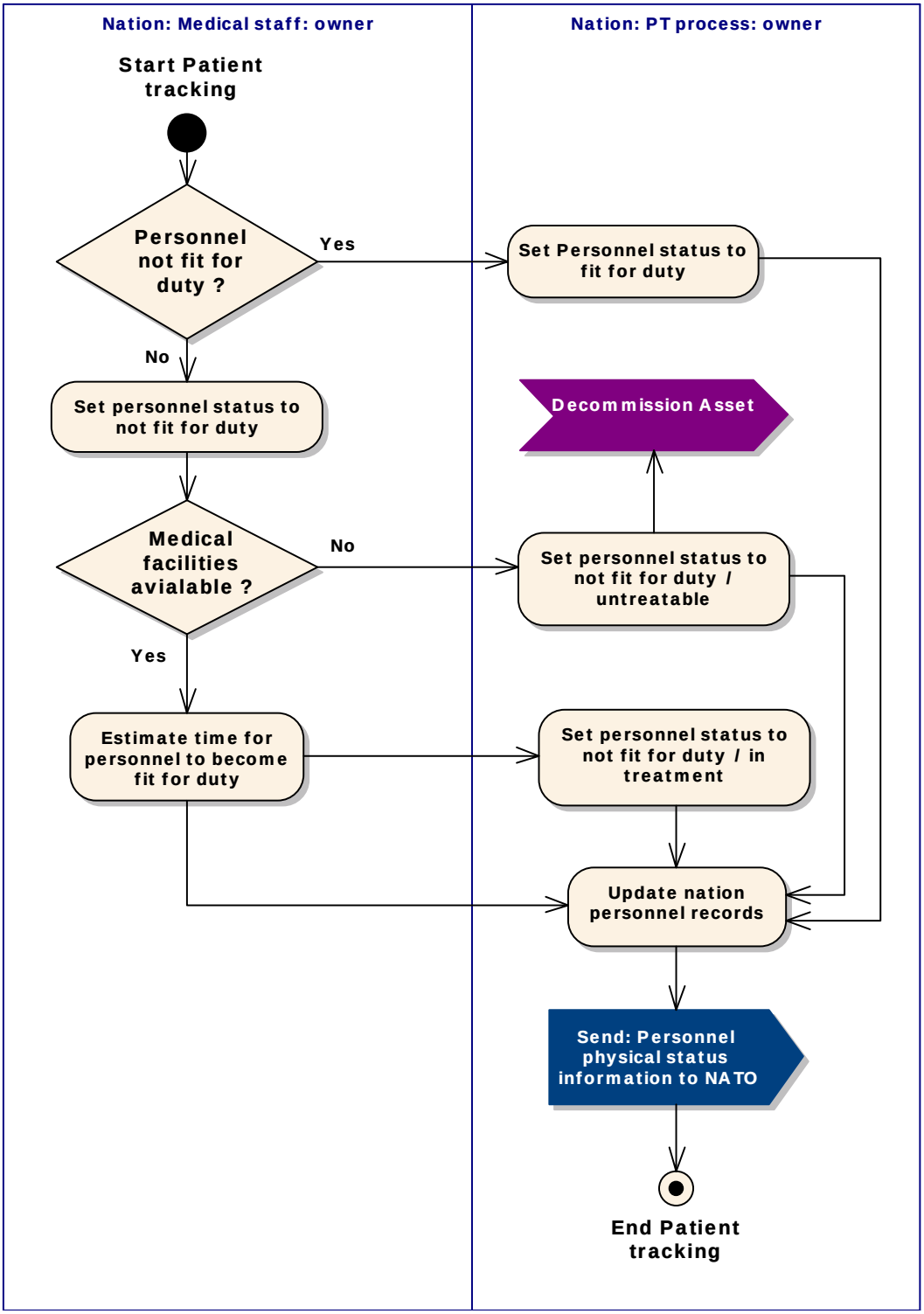


Figure 3-52 Determine Physical Status of Personnel (Patient Tracking)

Personnel can have the following physical status:

1 Available / fit for duty
The soldier is committed to an operation and is available to perform it's intended capability.

2 Not available / not fit for duty
A person is not fit for duty and is taken care of by the medical staff of one of the participating nations.

Physical Status Information Exchange

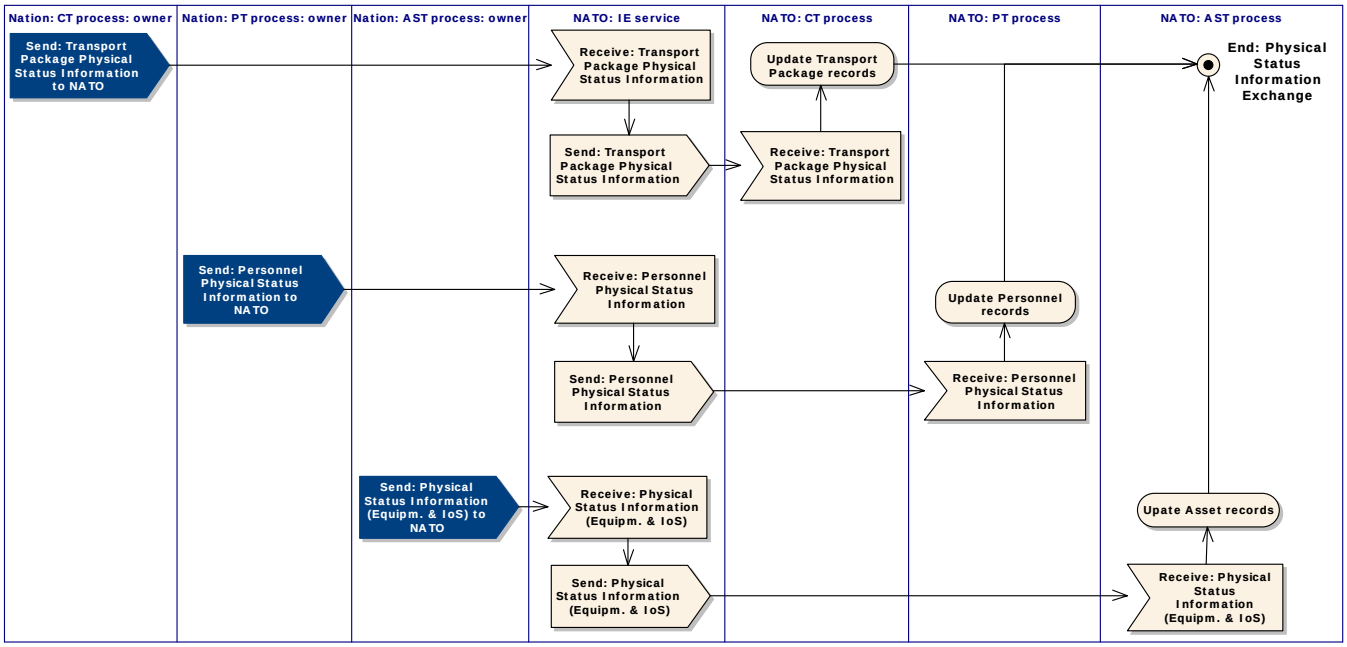


Figure 3-53 Physical Status Information Exchange

When a change in physical status occurs the information is to be exchanged with NATO or other nations if deemed necessary.

0311 Determine Unit Readiness

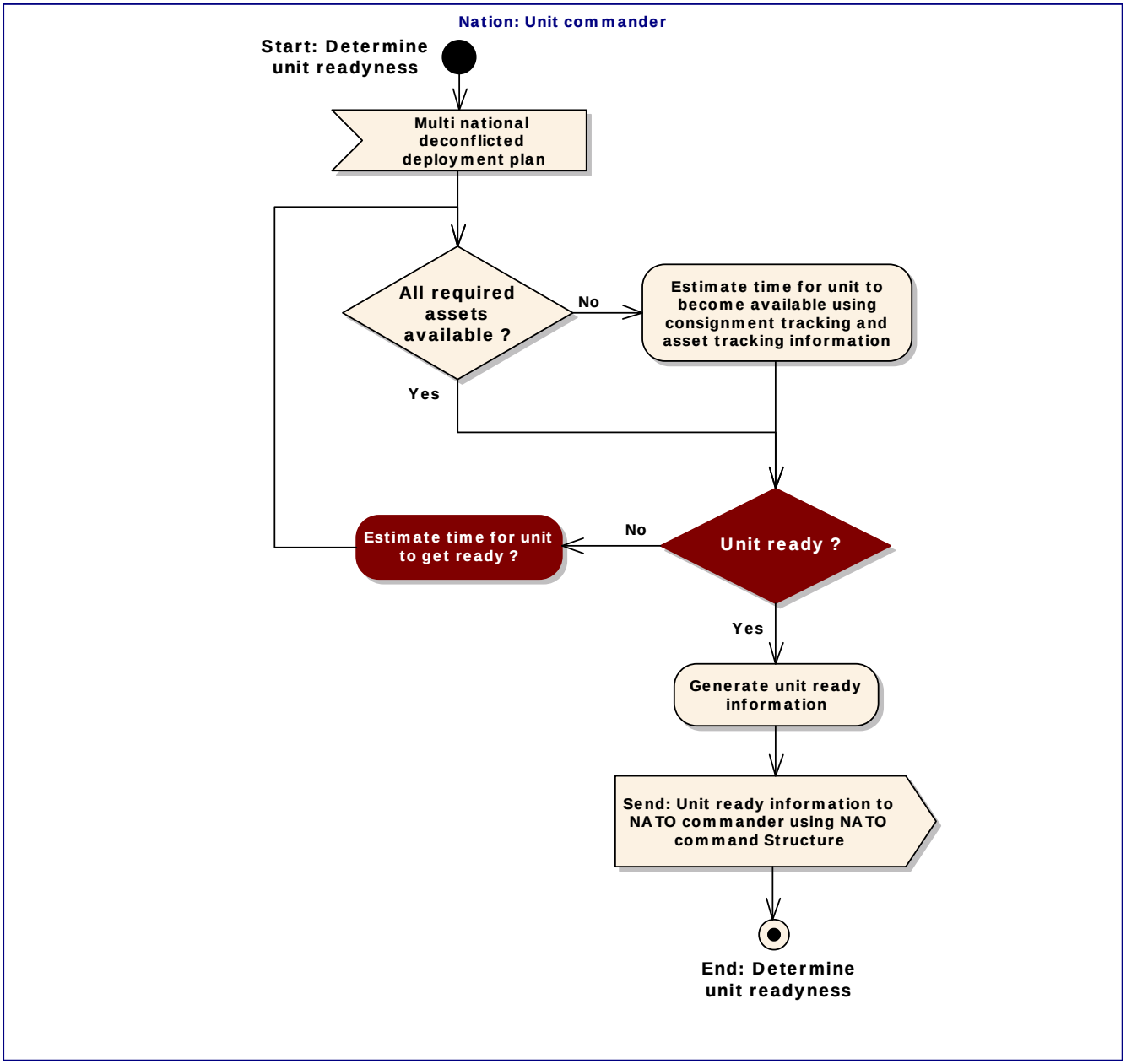


Figure 3-54 Determine Unit Readiness

Unit readiness determination is the sole responsibility of nation's unit commanders.

The diagram depicts a typical determination of unit readiness based on the registered arrival of all equipment, items of supply and personnel.

The unit commanders then perform their regular business process and at sometime the unit is determined to be ready.

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Annex A
REFERENCES

1. MC 319/2, NATO principles and policies for logistics.
2. AAP-6 NATO glossary of terms and definitions (English and French).
3. Bi-SC force goal EG 4052.
4. STANAG 2182 / AJP 4(a) Allied joint logistics doctrine.
5. STANAG 2183 NATO asset tracking communications requirements.
6. STANAG 2184 NATO principles and policies for asset tracking.
7. STANAG 2185 / AAP-56 NATO asset tracking electronic data interchange (EDI).
8. STANAG 2233 NATO asset tracking by radio-frequency identification (RFID).
9. STANAG 2290 unique identification of items.
10. STANAG 2292 / AJP-4.11 NATO asset visibility doctrine.
11. STANAG 2493 / AAP-35 NATO glossary of asset tracking terms & definitions.
12. STANAG 2494 NATO asset tracking shipping label and associated symbologies.
13. STANAG 2495 NATO data formats for asset tracking.
14. STANAG 4281 marking for storage and shipment.
15. STANAG 4329 / AAP-44 NATO standard barcode symbologies.

Annex B
LIST OF ACRONYMS

AAP	Allied Administrative Publication
ACO	Allied Command Operations
ACROSS	Allied Commands Resources Optimization Software System
ACT	Allied Command Transformation
ADAMS	Allied Deployment And Movement System
AI	Application Identifier
AIS	Allied Information System
AIT	Automated Identification Technologies
AJP	Allied Joint Publication
AMCC	Allied Movement Coordination Centre
APOD	Air Port Of Debarkation
APOE	Air Port Of Embarkation
AST	Asset Tracking
ATA	Actual Time of Arrival
ATD	Actual Time of Departure
BIC	Bureau International de Container
Bi-SC	Bilateral Strategic Commands
BPM	Business Process Model
CD	Compact Disc
CJTF	Combined Joint Task Force
COC	Chain Of Command
CRD	Commander's Required Date
CT	Consignment Tracking
DCI	Defense Capability Initiative
DDP	Detailed Deployment Plan
DVD	Direct Vendor Delivery
EDI	Electronic Data Interchange
ETA	Estimated Time of Arrival
ETD	Estimated Time of Departure
EVE	Effective Visibility Execution
FD	Final Destination
FD	Forward Depot
FMB	Forward Mounting Base
GIAI	Global Individual Asset Identifier
GRAI	Global Reusable Asset Identifier
GS	Global Strategic
GTIN	Global Trade Item Number
GUI	Graphical User Interface
HAZMAT	Hazardous Material
HN	Host Nation
HQ	Headquarters
ID	Identifier
IE	Information Exchange
IWW	Inland Waterways

JOA	Joint Operational Area
LLN	Logistic Lead Nation
LOGFAS	Logistics Functional Area Services
LOGREP	Logistics Reporting
LRSN	Logistics Role-Specialization Nation
LSD	Logistic Support Depot
M&T	Movement and Transportation
MEE	Mission Essential Equipment
MNDDP	Multinational Detailed Deployment Plan
MOA	Memorandum of Agreement
NATIES	NATO Asset Tracking Information Exchange Services
NATO	North Atlantic Treaty Organization
NC3A	NATO Consultation, Command And Control Agency
NC3B	NATO Consultation, Command and Control Board
NIC	National Identifier Code
NSE	National Support Element
NSN	NATO Stock Number
Nx	Nation x
PDF	Portable Document Format
POD	Port Of Debarkation
POE	Port Of Embarkation
PT	Personnel Tracking
RDD	Required Delivery Date
RFID	Radio Frequency Identifier
RIC	Reportable Item Code
RIL	Reportable Item List
SNLC	Senior NATO Logistician Conference
SPOD	Sea Port Of Debarkation
SPOE	Sea Port Of Embarkation
SRS	Software Requirements Specification
SSCC	Serial Shipping Container Code
STANAG	Standardization Agreement
ToR	Time on Route
ToL	Time on Leg
TP	Transport Planning
UID	Unique Item Identifier
UML	Unified Modeling Language
V&O	Vision and objectives
WMS	Warehouse Management System
XML	Extensible Mark-Up Language

Annex C
LEXICON

NATO Agreed Terms and Definitions (AAP-6)

Capability	A capability is something a military commander can use to perform certain tasks within a military operation.
Equipment	All non-expendable items needed to outfit an individual or organization
Item of supply	Items of supply can be pieces of equipment, spare parts, food, water, fuel, lubricants needed to keep equipment working, keep personnel running or heal personnel or provide the ability to repair equipment.
Mobility	A quality or capability of military forces which permits them to move from place to place While retaining the ability to fulfill their primary mission.
Near-real time	Near real time pertains to the timeliness of data or information which has been delayed by the time required for electronic communication and automated data processing. This implies that there are no significant delays.
Reportable Item Code (RIC)	A RIC code is a code assigned to individual assets (equipment, materiel, supplies and personnel) to categorize them according to their main characteristics. It is used to define operational capabilities for NATO's user community needs. In a RIC each character identifies a hierarchical level in the tree structures. The items are the leaves of the tree structure and are identified by all six alphanumerical characters. It is a code classifying all equipment, supplies and personnel as required by the user communities in NATO.
Reportable Item List (RIL)	A list of reportable item codes (RIC that are important for a commander for a specific operation. Subordinate units will report based on the RIC's on this list. The reportable item list is a filter for those RIC's to be reported on. It provides a clear overview if needed equipment is available and if so where it is located.
Unit	A military element whose structure is prescribed by a competent authority.

Non NATO agreed terms and definitions

Allied Commands Resources Optimization Software System	*This set of tools is part of LOGFAS. Across is used in long-term munitions planning for both of the NATO strategic commands and consists of linear programming model that compute the optimal munitions mix to stockpile and buy in order to counter a given set of threats and targets.*
Asset	*Units, personnel, equipment and materiel.*
Asset tracking	*Asset tracking (AST) is a means of providing NATO and nations with timely and accurate information on the location, movement, status and identity of assets by capturing, processing, storing and presenting asset tracking (AST) data.*
Asset tracking process	*A process to provide visibility and accurate information on the location, movement, status and identity of assets by capturing, processing, storing and presenting asset Tracking (AST) data.*
Commander's required date	*Commander's required date or the CRD is the latest date a force is expected to reach its final destination.*
Consignee	*An organization (party) that has the intention to receive the goods. (AAP-35)*
Consignment	*A consignment consists of one or more transport packages sent from a consignor to a consignee and specified by a unique consignment identifier.*
Consignment	*A consignment is a logical grouping of transport packages intended to be delivered as a whole from a consignor to an ultimate consignee and specified by a unique consignment identifier (consignment number) assigned by the consignor. A consignment is not a physical grouping of assets.*
Consignment tracking	*Consignment tracking is a means of providing NATO and nations with timely and Accurate information on the location, movement, status and identity of consignments by capturing, processing, storing and presenting consignment tracking data.*
Consignment tracking node	*A point in the supply chain or lines of communication at which data is captured or updated.*
Consignment tracking process	*A process to provide visibility and accurate information on the location, movement, Status and identity of consignments by capturing, processing, storing and presenting Consignment tracking (CT) data.*
Consignor	*The party party sending a consignment by carrier (proposed for AAP-35)*
Critical asset	*An asset, the lack of failure of which would cause the loss of a mission-essential operational capability.*
Delivery	*A delivery is a set of assets to be delivered to a unit at a required delivery date*
Deployment	*Reallocation of forces to desired areas of operations. (aap-6)*
Deployment order	*A deployment order is the order given by a nation staff to a certain unit that intended to be deployed to the theatre of operations*

Detailed deployment plan	*A standard NATO deployment plan that includes the following information :* • *the path (locations) through which the deployment of a force or supply package occurs.* • *transportation assets, their schedules and manifests;* • *planned times for the movement of forces and supplies;* • *asset preferences for the movement of forces and supplies;*
Log base	*The logistics database that stores data necessary for LOGFAS tools.*
Logistic lead nation	*One nation assumes overall responsibility for organizing and coordinating an agreed Broad spectrum of logistics support for all or part of a multinational force, including Headquarters, within a defined geographical area for a defined period. This LLN can Also provide capabilities as LRSN at the same Time. (mc 319/2)*
Logistics functional area services	*This is one of the subsystems of BI-SC (strategic command) AIS (Allied Information System) that supports users with logistics-related services. Currently implemented Services under LOGFAS consist of ADAMS, ACROSS and LOGREP.*
Logistics Role-Specialist Nation	*One nation assumes overall responsibility for providing or procuring a specific logistics capability and/or service for all or part of the multinational force within a defined geographical area for a defined period. Compensation and/or reimbursement will then be subject to agreement between the parties involved. (MC 319/2)*
Means of transport	*Vehicles used for moving people or goods from one place to another.*
Mission essential equipment	*Equipment, the lack of which would likely preclude the successful accomplishment of the commander's mission.*
Movement	*The activity involved in the change in location of equipment, personnel or stocks as part of a military operation. Movement requires the supporting capabilities of mobility, transportation, infrastructure, movement control and support functions. (mc 319/2)*
NATO consultation, command and control agency	*NATO consultation, command and control agency (NC3A) is a NATO organization Responsible to the NATO consultation, command and control board (NC3B). Its Mandate is to provide unbiased scientific advice to NATO headquarters, organizations and nations in C3 issues, and to support them in their C3 acquisition process.*
NATO CT process	*A process to provide NATO and nations with timely and accurate information on the location, movement, status and identity of consignments by utilizing NATO and/or national consignment tracking data.*
NATO standardized consignment identifier	*A standard identifier used to identify and refer to consignments in any NATO CT system.*
Nodal consignment data	*Consignment data gathered at a CT node.*
Personnel	*Personnel are soldiers or civilians who are a part of a unit or force committed to a NATO operation. Personnel must be discretely identifiable.*
Radio frequency identification	*Radio wave transmission and reception to pass information about anything that needs to be identified or tracked.*
Readiness	*As applied to a HQ or a unit, is the period of time measured from an initiation order to the moment when the HQ or unit is ready to perform its task from its peacetime location (Permanent or forward deployment). (MC 317/1)*
Reportable item code	*The reportable item code is a six character alphanumeric code that can be assigned to individual assets in order to categorize them according to their operational capability for NATO's reporting purposes.*
Reportable item list	*A list of reportable item codes (RIC) that are important for a commander for a specific operation. Subordinate units will report based on the RICs on this list.*
Requisition	*A requisition is a set of assets required by a unit at a certain moment in time*
Shipment	*A shipment is another logical grouping of transport packages for transport purposes to be moved on a leg of a route and specified by a unique shipment identifier (shipment number) assigned by a military or commercial shipper or freight forwarder.* *A transport package may be reconfigured into other shipments along the route towards the theatre of operations.*
Shipment of personnel	*A shipment of personnel is a logical grouping of one or more persons (military or civilian) for transport purposes to be moved on a leg of a route and specified by a unique shipment identifier (shipment number) assigned by a military or commercial personnel shipper.*
Strategic mobility	*The capability to move forces and their associated logistics, in a timely and effective manner, over long distances. This could be between a joint area of operations (inter-JOA), between regions (inter-regional), or beyond NATO's area of responsibility.*
Theatre of Operations	*The geographical area where a military operation is being conducted.*
Transport package	*A transport package consists of one or more assets moved as a single object with a Unique identifier that can be uniquely tracked.*
Transport package	*A transport package is a physical grouping of one or more assets packed for transportation to be moved from a consignor to an ultimate consignee or group of transport packages packed into a new transport package to be moved from a consignor to a consignee and specified by a unique serial shipping container code (SSCC).*

	Transport packages can physically be consolidated into transport packages identified by a new SSCC.
Transportation assets	*Air, land, rail, maritime and inland waterways (IWW) transportation assets that are used for moving forces and supplies. Transportation assets are mainly defined by their capacity and speed.*
Unified modeling language	*A modeling language and the diagrams that comprises it. It is used for the documentation of object-oriented software systems and has become a de-factor software documentation standard.*

Annex D
UML NOTATION

1. Unified modeling language (UML) is a standard notation that is used for business process modeling and system definition. The current version of UML, 2.0, supports many diagrams to help modeling systems or processes in detail.
2. In this business process model, we have made use of two basic diagrams: use case diagrams and activity diagrams.
3. Use case diagrams. A use case diagram captures use cases and actor interactions. It describes the functional requirements of the system, the manner that outside things (actors) interact at the system boundary and the response of the system.

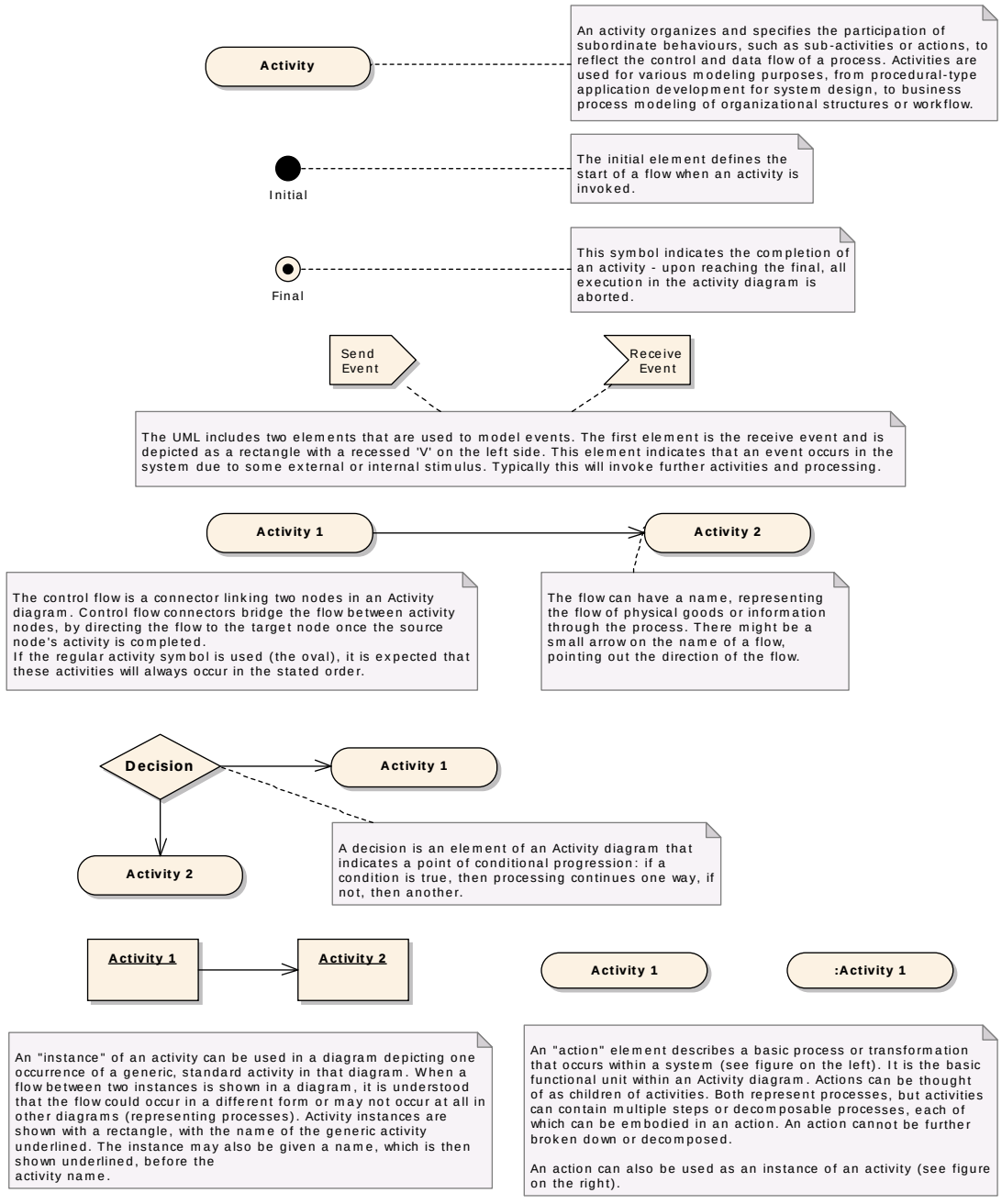

Figure D-1 Use Case Notation

4. Activity diagrams. Activity diagrams are used to model the behaviors of a system, and the way in which these behaviors are related in an overall flow of the system. The logical paths a process follows, based on various conditions, concurrent processing, data access, interruptions and other logical path distinctions, are all used to construct a process, system or procedure.
5. It is possible to show activities and the path a process could follow among those, but it is also possible to show the information flow between these activities, albeit in a conceptual (and not a software data flow) form.

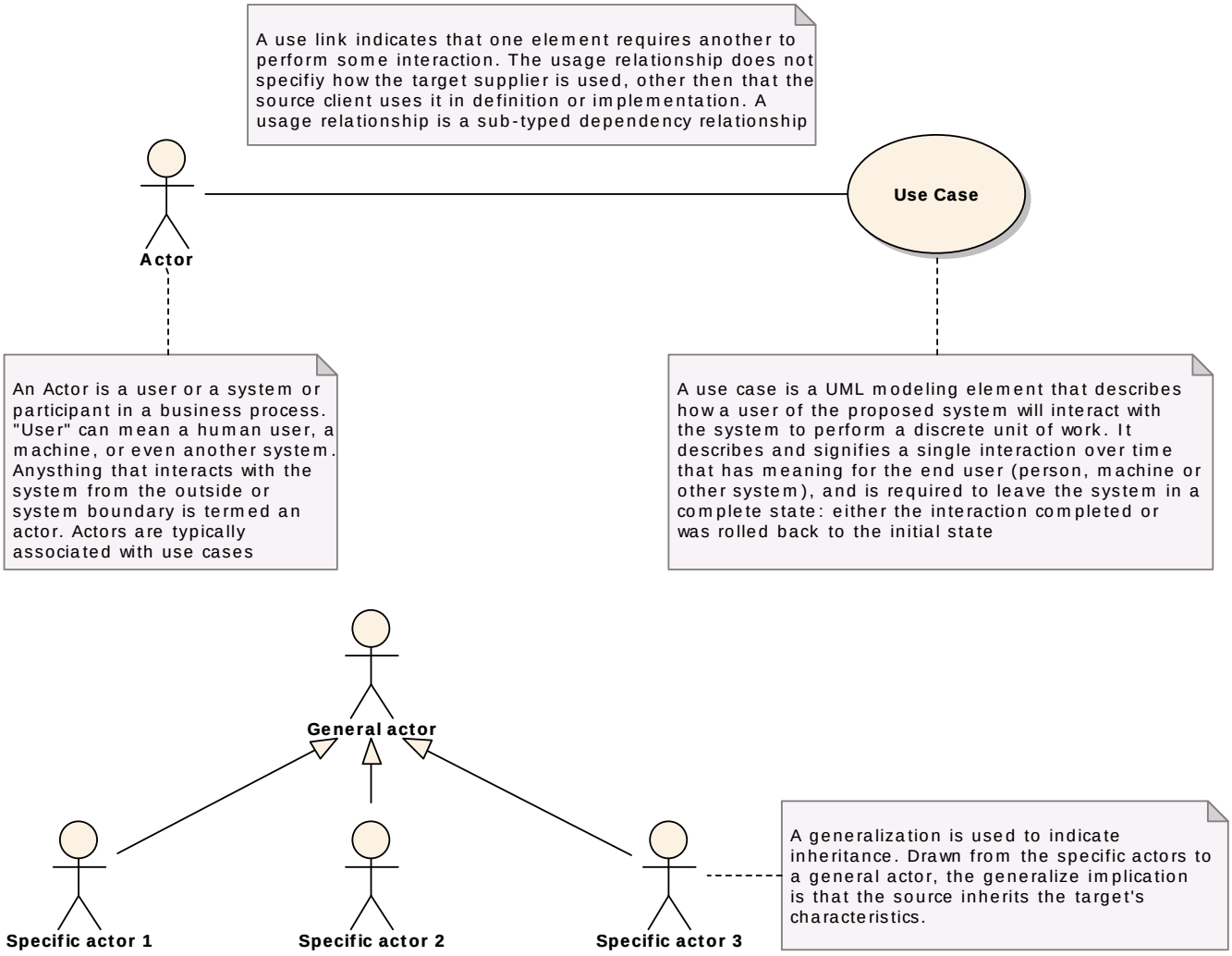

Figure D-2 Activity Diagram Notation

6. Swim lanes. Swim lanes are vertical or horizontal bands in a diagram that divide the diagram into logical areas or partitions. In activity diagrams, swim lanes are used to depict the actors that are going to be the major executors of the activities depicted in the diagram. If an activity falls into the swim lane of an actor, it is understood that that actor is the major executor for that activity. If the activity is over multiple swim lanes, then there is shared responsibility for that activity.
7. The following activity diagram shows the activities grouped into the swim lanes representing actors according to which actor the activity belongs to (or which actor is the major player in an activity).

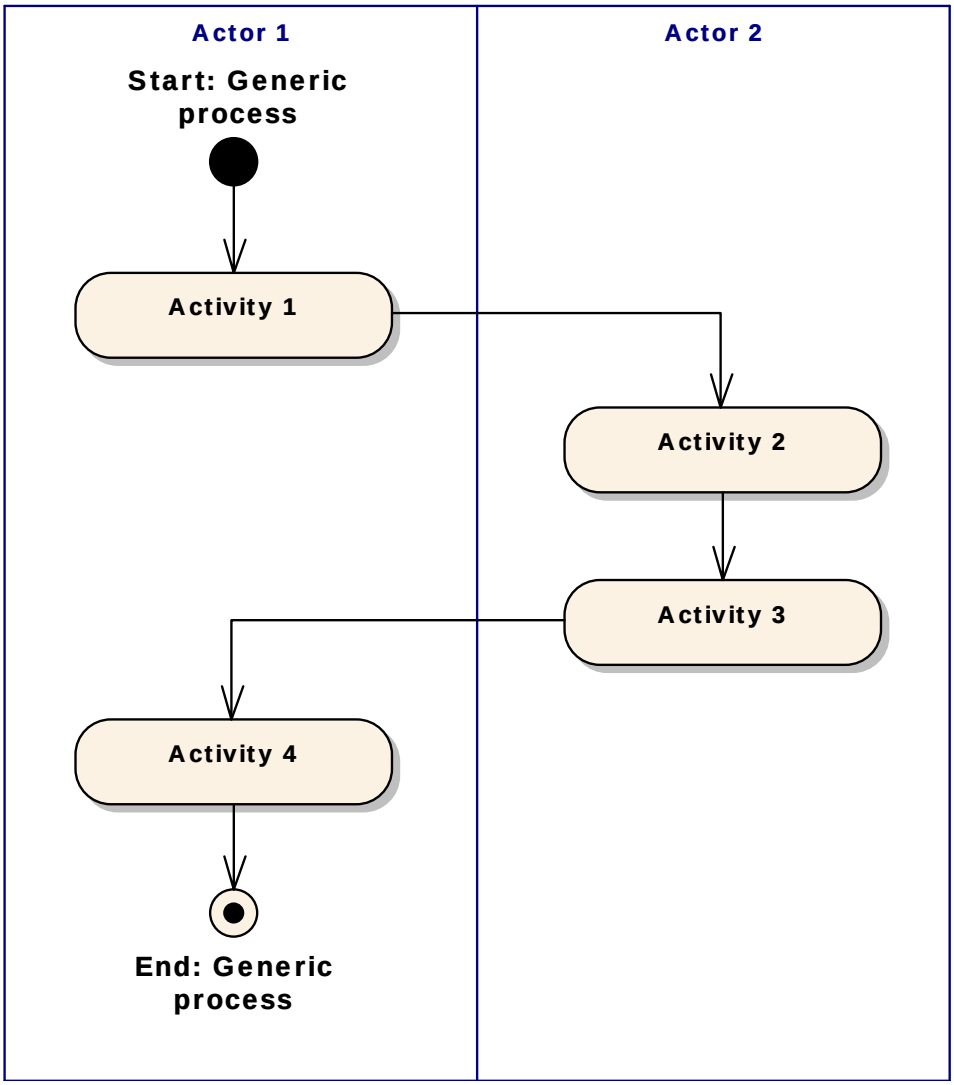

Figure D-3 Swim lanes

Annex E
ENTITY RELATIONSHIP DIAGRAMS

An entity relationship diagram depicts the relationships between one or more entities in a business process.

Below there is an example diagram for a book.

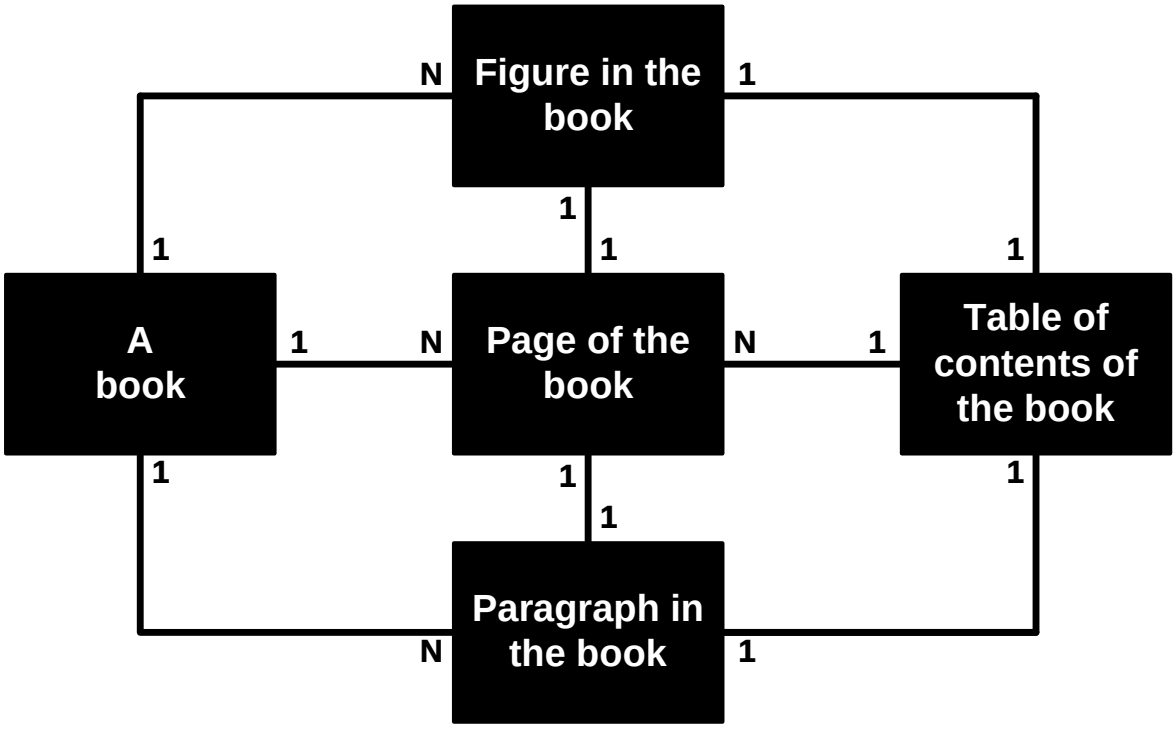

Figure E-1 Entity Relationship Diagram Example

A book can have:

- one or more (N) pages;
- one or more (N) figures;
- one or more (N) paragraphs.

The table of contents:

- contains one or more (N) references to the pages of the book;
- contains one reference to a picture in the book;
- contains one reference to a paragraph in the book.

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