

# Approach to Unique Identification (UID) Initial Operating Capability (IOC)

at

## DoD Maintenance Depots



**May 2005**

**Prepared by the Office of the Secretary of Defense  
Materiel Readiness and Maintenance Policy**

## Executive Summary

Not later than FY 2007, DoD's organic depots are required by OSD policy to be fully capable of applying UID marks to all legacy items<sup>1</sup> which are returned to the depot for maintenance or modification. This requirement includes the ability to capture, store and transact UID data. "Full Operating Capability" (FOC) at each depot is preceded by a limited "Initial Operating Capability" (IOC). This paper presents an approach for characterizing "Depot UID IOC", and recommends an IOC checklist to aid in management planning.

**UID Initial Operating Capability.** As a sub-set of FOC, IOC represents the point at which the depot is capable of performing minimum essential UID tasks on a limited population of tangible inventory items. UID IOC includes process and information infrastructure capabilities associated with UID data management, as well as the ability to acquire and operate parts marking hardware. The recommended minimum achievements needed for an organic depot to declare UID Initial Operating Capability fall into three categories: (1.) the capability to responsibly plan and manage UID implementation at the depot, (2.) the capability to implement approved UID automated information system (AIS) plans and policies at the depot, and (3.) the capability to implement approved UID parts marking plans and policies at the depot.

### IOC Checklist:

1. Planning & Management.
  - a. Depot/Program Office Integrated Program Teams (IPTs) to define roles and responsibilities and to plan and execute capability establishment chartered and functioning.
2. Implementing Processes (UID AIS).
  - a. Local serialization schema determined.
  - b. Central data base which will become single touch point for UID stood up.
  - c. Communication with DoD Registry for both new and legacy parts established. This communication must be automatic and not involve human intervention to transact data.
3. Implementing Processes (UID parts marking).
  - a. Capability to apply UIIs to equipment items and parts assigned by the Depot/Program Office Team, established.
  - b. Parts marking effort initiated in accordance with updated repair/rework specifications and depot maintenance work requirement (DMWR) instructions on selected IOC inventory items.

This paper treats IOC not as an end unto itself, but, rather, as an important milestone on the critical path to FOC. As such, "Full Operating Capability" is described in some detail so that the minimum depot capabilities required at the "Initial Operating Capability" milestone may be understood in context.

---

<sup>1</sup> All tangible assets currently in inventory or operational use which have been identified as UID items by the cognizant Program Management Office.

## **Approach to IOC for Parts Marking at DoD Depots**

Achievement of Initial Operating Capability (IOC) in UID is an important milestone on the critical path to achieving Full Operating Capability (FOC). FOC must look well beyond the ability to merely mark parts, and consider the ability of the depot to be part of the Net Centric Automated Maintenance Environment envisioned by DoD. To achieve that status, the depot must have its maintenance, repair and overhaul (MRO) and manufacturing processes, including parts marking, fully integrated into a robust information system that permits visibility across the depot environment. It must, further, be in a position to capitalize on the ability to view the life history “pedigree” information associated with individual marked repairable items. This “serialized item management” (SIM) capability enables not just more effective and efficient troubleshooting and repair, but also detailed parts usage and reliability tracking, accurate repair cycle-time evaluation and management, and near real-time sustainment cost accounting.

### **Background**

In response to GAO Audit Findings critical of the Department’s ability to physically and financially account for its spare and repair parts, and in support of the ongoing compliance requirements of the Chief Financial Officers’ Act, OSD undertook to improve its ability to account for the Department’s tangible items. The DoD vision for unique item identification is to implement policy, regulations, and supporting processes that enable the Services to uniquely identify all significant tangible items in their inventories. This initiative is considered a strategic business imperative for the Department of Defense.

On 29 July 2003, the Acting Under Secretary of Defense (Acquisition, Technology and Logistics) signed a policy memorandum entitled “Policy for Unique Identification (UID) of Tangible Items – New Equipment, Major Modifications, and Reprocrements of Equipment and Spares”. This Policy made UID a mandatory DoD requirement on all new equipment and materiel delivered pursuant to solicitations issued on or after January 1, 2004. USD(AT&L) issued verbal guidance that tangible assets manufactured by DoD’s organic depots were to be considered “new” items which fall under UID marking policy, beginning 1 January, 2005. An item is considered “significant”, and will be uniquely identified if: (1) the acquisition cost (manufacturing cost for DoD depots) is \$5,000 or more, (2) it is either a serially managed, mission essential or controlled inventory piece of equipment, or a repairable item, or a consumable item or materiel where permanent identification is required, (3) it is a component of a delivered item, if the Program Manager has determined that unique identification is required, or (4) a UID or a DoD-recognized UID equivalent is available.

In setting forth a UID policy, the following strategic outcomes were defined:

- Data integration across Department, Government, and Industry systems as envisioned by the DoD Business Enterprise Architecture
- Improved item management and accountability
- Improved asset visibility and life-cycle management

- Clean audit opinions on the property, plant, and equipment and operating materials and supplies portions of DoD financial statements

In a major policy update dated 23 December, 2004, USD(AT&L) issued a Memorandum entitled “Policy for Unique Identification (UID) of Tangible Personal Property Legacy Items in Inventory and Operational Use, Including Government Furnished Property (GFP)”<sup>2</sup>. This update extended the parts marking and data management requirements, previously applied only to newly manufactured items, to all significant items currently in the DoD inventory.<sup>3</sup>

The policy update has profound implications for the DoD depots, both organic and commercial, as well as for the entirety of the DoD maintenance enterprise. Since parts will not normally be removed from service for the sole purpose of UID marking, the majority of legacy marking will take place in conjunction with a maintenance or modification action (“opportunistic marking”). This increases by two or three orders of magnitude the number of UID actions our depots must be prepared to manage.

Legacy UID capability will be established at the depots in phases. USD(AT&L)’s December 2004 policy memo states: “The Military Departments should plan on establishing initial depot operating capabilities for (selected) legacy items by July 2005, at those depot facilities currently involved with UID for depot manufactured items<sup>4</sup>. Full Operating Capability (FOC) at all organic depots will be put in place not later than FY 2007.” IOC dates for all organic depots other than the three pilot depots will be determined prior to November, 2005 and published in the December, 2005 DUSD(L&MR) “*Full Operating Capability UID CONOPS for DoD Maintenance*”.

Program Managers are required to plan for UID implementation for the legacy items over which they have cognizance. Program plans must be submitted by January, 2006 (June 2005 for ACAT 1D Programs).

A summary of all the major milestones identified in the December, 2004 USD(AT&L) UID policy memorandum is in Attachment 1.

### **Assumptions Associated With FOC**

1. Both new and legacy parts will be considered.
2. Clear seamless links to the DoD UID Registry and to all serialized item management (SIM) data bases will be defined.
3. UID data capture and manipulation will be automated to the maximum extent possible. Workarounds that put the human in the data collection/data transaction loop will not be institutionalized.

---

<sup>2</sup> “Personal Property” in this context is an accounting term which refers to all tangible items that are not “real property” (real estate, buildings, facilities, etc.).

<sup>3</sup> The 23 December 2004 policy update also formalized the requirement that DoD Depots mark newly manufactured items.

<sup>4</sup> DoD’s three pilot depots for UID are NADEP Cherry Point, Letterkenny Army Depot and Ogden Air Logistics Center.

4. Process by which to apply unique item identifiers (UIIs) on designated items will guide the selection of parts marking hardware.
5. Engineering approval for parts marking will be required.

## **Processes Associated With Capability Establishment**

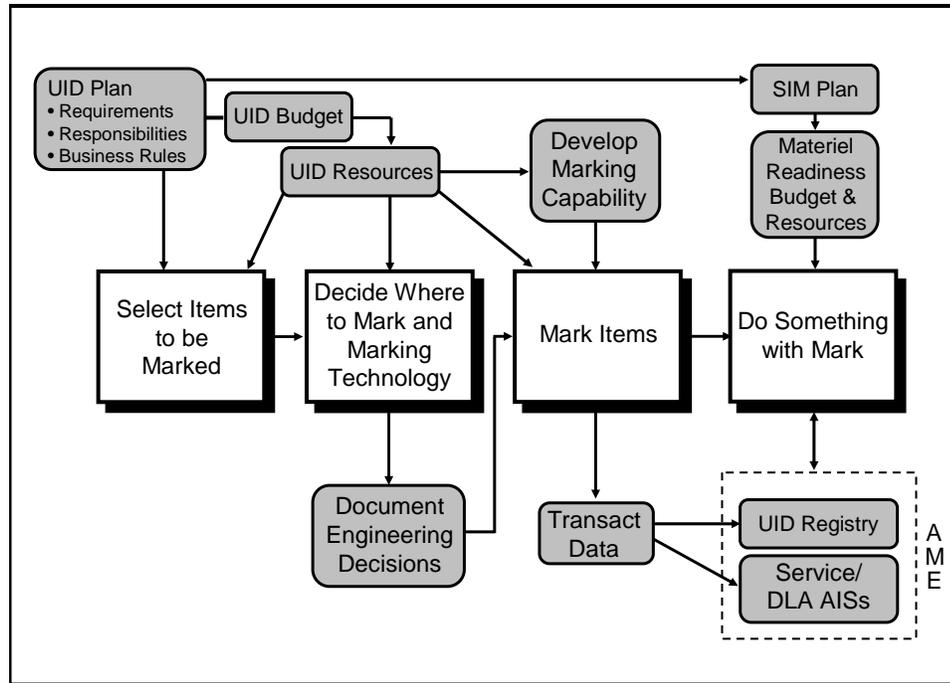
The vision end state for UID/SIM at the depots is to create a business architecture which contributes to a seamless data flow within a net centric automated maintenance environment. This vision will be realized by achieving DoD UID and SIM policy goals within the maintenance enterprise. The following discussion describes the process work that needs to be done to achieve depot UID FOC. *The minimum level of accomplishment needed to declare IOC is indicated in italic.*

1. **Establishing the Capability to Responsibly Plan and Manage UID Implementation at the Depot.** USD(AT&L)'s 29 July 2003 UID policy memo on new equipment marking directed that "...all program managers for new equipment, major modifications, and reprocurments of equipment and spares shall begin planning to apply Unique Identification (UID) on tangible items..." In his 3 September 2004 UID policy update, USD(AT&L) requested that "... the Component Acquisition Executives direct all program and item managers to begin planning for the application of the UID to the Department's existing legacy items in inventory or in operational use." Finally, in his 23 December, 2004 Memo, USD(AT&L) requested "...that the Military Departments direct all program and item managers to plan for and implement UID for existing legacy personal property items in inventory and in operational use..." "ACAT ID programs must submit UID program Plans to the UID Program Office by June 2005. All other programs must submit plans to their respective Milestone Decision Authorities by January 2006. The plans should target Fiscal Year (FY) 2007 as the point by which: (a) all existing serialized assets that meet the criteria for UID have been entered in the UID registry, and (b) UID marking capabilities have been established for all existing items and embedded assets such that marking can commence as applicable equipment are returned for maintenance." Program and item managers were further requested to "...plan to complete UID marking of all items and all applicable embedded assets within existing items by December 31, 2010."

This is an extremely aggressive planning challenge. It is inconceivable that quality Program Office UID plans could be prepared in the time allowed without aggressive depot participation.

The depot "chapter" of each Program Officer's UID plan, which will necessarily be specific to the depots which repair the PM's equipment, needs to be sufficiently detailed to serve as the basis for UID manpower, equipment and facilities requirements determination, as well as overall depot UID program budget preparation and defense. The plans must cover, at a minimum, the actions (and associated schedules) needed to establish, or otherwise gain access to the capability to mark items. They must also explain the processes which will be used to associate minimum required UID data (item's "birth

record”) to the UID mark (item’s “SSN”), and the process by which UID data will be managed over time.



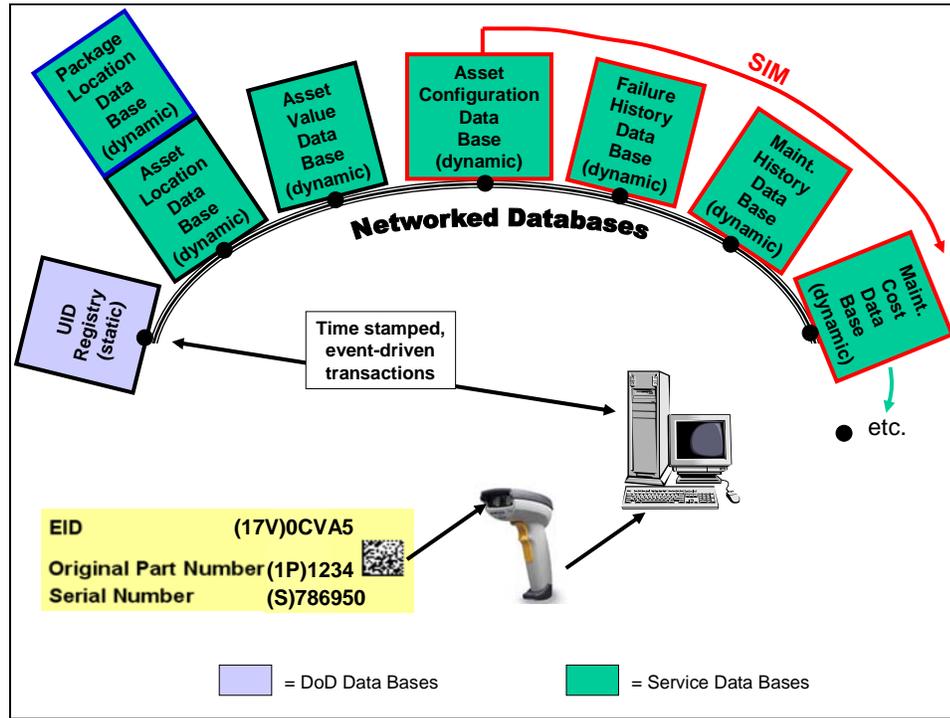
Planning in Support of Depot UID IOC and FOC

*Minimum Capability to Declare IOC = Depot/Program Office Integrated Program Teams (IPTs) to define roles and responsibilities and to plan and execute capability establishment chartered and functioning. Additionally, depot MRO and manufacturing processes mapped at a high level to determine how and where to insert parts marking capabilities. The “as-is” process models will baseline the extent of AIT integration and employment within the depot environment.*

2. **Establishing the Capability to Implement Approved UID Automated Information System (AIS) Plans and Policies.** The single biggest challenge which UID must overcome is not parts marking; it is building the Automated Information System which will enable decision makers to update and monitor the pedigree of millions of new and legacy repairable items on a near-real time basis. Without a capability to transact and retrieve information about marked items, there is no utility to UID, and certainly no meaningful Return-On-Investment.

Initial UID data transactions will be between field sites and the UID Registry. “Pedigree” data transacted will be limited to changes in item location (inventory tracking) and item value (asset accounting). These capabilities represent the “strategic business imperative” which spawned the UID initiative in OSD. Leveraging the ability to transact UID data to and from the UID Registry, current and future weapon system sustainment AISs will

capitalize on UID technology to enable wholesale serialized item management within a network-centric automated maintenance environment (AME). AME is an overarching concept which integrates procurement, sustainment and operational processes into an enterprise management tool. Rather than continue with numerous stove-pipe systems, the AME combines the multiple processes through automated technology and digital systems to create a total information environment.



Role of UID in an Integrated Information Environment

Developing the capability to implement UID AIS plans and policies requires:

- a. Establishing the Uniqueness of Data Elements. Each depot must have in place a process for establishing a UID serialization capability for both new and legacy parts.
  - i. For new parts, the following is recommended :
    1. EID – Depot CAGE Code
    2. Serial number – Unique within CAGE Code
    3. Part Number – Current part number
    4. DoD Construct 1- This construct conforms to the UID policy with the smallest number of data elements and is compatible with current SNT policies within the three services.
  - ii. For legacy parts the data elements for establishing the UII can be the same as for new parts but there must be a link to the legacy information as it appeared on the part when it entered the depot. This requires the file that is transferred to the DoD registry to have both the UII information and the

legacy data which might include serial number, CAGE code and part number.

- b. Establishing a Local Database. This key element of UID/SIM capability establishment would centrally control the UID serialization process. This database will act as the touch point of the AIT information architecture for the depot. As the depot information system matures, this central facility will be the foundation for all of its in-service support processes (including, but not necessarily limited to manufacturing, MRO, and in-service engineering). Additionally this database would be the single vehicle to share item “pedigree” data both internally and externally. Customers for this data include the DoD registry, the Program Management Offices, the original equipment manufacturers (OEMs) and the operational equipment sustainment managers.
- c. Linking Depot UID Data Base to UID Registry and SIM Data Bases. For both legacy and new parts, there is a requirement to register the UID data elements in the DoD Registry. This process is defined for new products within the Wide Area Work Flow (WAWF) and for legacy parts within an XML schema. Both of these processes must be documented at the local level to permit the data to be registered without manual transcription. Likewise, the process for associating the unique item information (UII) marked on the part with item pedigree data stored in dynamic SIM data bases, the process for downloading and updating the data, and the process for returning the updated data to the designated repository must be documented, and the capability to implement these processes must be achieved.

*Minimum Capability to Declare IOC =*

- a. *Local serialization schema determined.*
  - b. *Central data base which will become single touch point for UID stood up.*
  - c. *Communication with DoD Registry for both new and legacy parts established. This communication must be automatic and not involve human intervention to transact data.*
3. **Establishing the Capability to Implement Approved UID Parts Marking Plans and Policies.** Three overarching considerations drive physical parts marking capability establishment at the depot: (1.) identifying which parts to mark, (2.) selecting which marking technology to use, and (3.) deciding where to mark each part. The first responsibility rests with the PMO/Depot UID IPT. The second two are engineering decisions which are the responsibility of the cognizant technical authority (CTA) for the item to be marked.<sup>5</sup> Once these three questions have been answered for any given item, establishing the capability to physically mark designated equipment is not unlike establishing a new repair or rework capability at the depot. Technical data must be obtained and made available; marking equipment may have to be purchased; production

---

<sup>5</sup> The CTA is the individual with the authority to approve item drawing changes. He is responsible for item configuration control. All parts marking engineering decisions will be formally documented in updated repair/rework specifications, drawings and/or depot maintenance work requirements (DMWRs), as appropriate.

process must be devised, integrated with legacy processes and documented; and artisans may need to be trained. Perhaps facilities will need to be modified or constructed. Eventually, as capability matures, production goals will be established and marking workload will be funded and scheduled. As discussed above, depot UID AIS capabilities will be employed to route unique item identifier (UII) data from the local UID database to marking machines on the shop floor. After marking is complete, the mark will be read and verified (a critically important step!), and the UII data will be approved for release to the UID Registry and other designated decision support system data bases, as applicable.

*Minimum Capability to Declare IOC = Capability to apply UIIs to equipment items and parts assigned by the Depot/Program Office Team, established. Parts marking effort initiated in accordance with updated repair/rework specifications and depot maintenance work requirement (DMWR) instructions on selected IOC inventory items.*

## **Summary**

This paper attempts to capture the minimum essential policy and process considerations associated with UID/SIM implementation at an organic DoD depot. UID capability establishment, beginning with Initial Operating Capability and continuing to Full Operating Capability, will require focused leadership, cross-functional team cooperation, depot management buy-in and hard work to ensure success. But the return on the investment will be tremendous. Enabled by UID, decision makers will be able to access item life history or “pedigree” information to achieve a level of situational awareness about repairable asset location, usage, performance, reliability and ownership cost not previously possible. This data, both as stand-alone knowledge and when integrated with other data as part of analytical modeling efforts, will inevitably reveal better ways of achieving and sustaining optimized weapon system materiel readiness and optimized weapon system life-cycle support cost.

Milestone	Responsibility	Q1 FY05	Q2 FY05	Q3 FY05	Q4 FY05	FY06	FY07	FY08	FY09	FY10	FY11
Quality Assurance Plan for UID	DCMA		Jan-05								
OSD UID Budget Guidance to Components	OSD AT&L			Apr-05							
Legacy UID Implementation Plan for DoD Depots	OSD L&MR			May-05							
UID Program Plans (ACAT 1D Programs)	Pgm Mgr			Jun-05							
IOC Legacy Marking Capability at Pilot Organic Depots	Military Departments				Jul-05						
FOC UID CONOPS for DoD Maintenance	OSD L&MR					Dec-05					
UID Program Plans (All Programs)	Pgm Mgr/Item Mgr					Jan-06					
All GFE Meets UID Policy Requirements	Pgm Mgr/Item Mgr					Jan-06					
All Existing Serialized Assets Entered in UID Registry	Pgm Mgr/Item Mgr						Sep-07				
FOC Legacy Marking Capability at All Organic Depots	Military Departments						Sep-07				
Complete UID Marking of All Legacy Items	Pgm Mgr/Item Mgr										Dec-10

Major Milestones Identified in the December, 2004 USD(AT&L) UID Policy Memorandum