

The Lot Traceability System (LTS+PLUS) enables you to automate the tracking of the composition of your products through the entire production process, from purchased lots from your vendor all the way through the final product shipments to the customer. LTS+PLUS greatly reduces the effort required to effectively manage a lot and maintain both upward and downward traceability since this data is acquired as a by-product of your daily receiving and production activities.

LTS+PLUS requires Itemizer+PLUS, Builder+PLUS, IVT+PLUS and Planner+PLUS.

LTS+PLUS uses and expands the information maintained by the Bill of Material System (BMS+PLUS), Material Requirements Planning (MRP+PLUS), Material Control System (MCS+PLUS), Shop Floor Control (SFC+PLUS), and Purchasing Control System (PCS+PLUS). As a result, the creation and maintenance of LTS+PLUS information is virtually transparent to system users. The AMAPS+PLUS transactions that are by-products of your daily manufacturing operations provide all the information needed to fully trace the "as built" configuration of your products.

### Lot Tracking, Traceability, and Accountability

To support the objectives of lot tracking, traceability, and accountability, LTS+PLUS creates a timely and accurate genealogy of your product composition. LTS+PLUS tracks and provides visibility of the origin, status, and consumption of lots and serial numbers. The system maintains traceability of external lot sources and consumers such as vendor or customer orders as well as in-house lot sources and consumers such as manufacturing, rework, or destruction orders. Status information includes quality control status, availability, and condition of lots.

The screenshot shows the 'Ask Amaps AMQ' application window. At the top, there is a menu bar with options: File, Goto, Display, Format, Inquiry, SaveSpread, RestoreSpread, Stop, Window, Help. Below the menu bar are three tabs: 'Lot Where-Used', 'Conditional Components', and 'Lot Activity'. Underneath these are three more tabs: 'Item Lots', 'Lot Detail', and 'Lot Structure'. The 'Lot Structure' tab is active, displaying a table with the following data:

Lot Structure	Comp Lot Nbr	Comp Item Nbr	Create Date	LTS Date	Relationship Qty	Total Scrap Qty	Vendor Number	Lot Type	Total Qty Received	Total Qty Issue
1	XD100	LTS0	10/28/2008	10/28/2008	7.00	0.00		M = Manufacturing	7.00	0.00
..2	LOT1	LTS1	10/28/2008	10/28/2008	10.00	0.00		M = Manufacturing	0.00	10.00
....3	XD101	LTS1	10/28/2008	10/28/2008	20.00	0.00		M = Manufacturing	20.00	0.00
.....4	LOT1	LTS2	10/28/2008	10/28/2008	30.00	0.00		M = Manufacturing	0.00	30.00
.....5	XD102	LTS2	10/28/2008	10/28/2008	60.00	0.00		M = Manufacturing	78.00	0.00
.....6	LOT1	LTSP	10/28/2008	02/26/2009	75.00	0.00	V001	R = Receiving	0.00	75.00
.....7	V001	LTSP	10/28/2008	10/28/2008	900.00	0.00	V001	V = Vendor	900.00	0.00
.....8	PD10001001	LTSP	10/28/2008	10/28/2008	900.00	0.00	V001	P = Purchase	900.00	0.00
.....6	LOT1-A	LTSP	02/26/2009	02/26/2009	10.00	0.00	V001	I = Internal	0.00	10.00
.....7	LOT1	LTSP	02/26/2009	02/26/2009	110.00	0.00	V001	R = Receiving	0.00	75.00
.....8	V001	LTSP	10/28/2008	10/28/2008	900.00	0.00	V001	V = Vendor	900.00	0.00
.....9	PD10001001	LTSP	10/28/2008	10/28/2008	900.00	0.00	V001	P = Purchase	900.00	0.00

At the bottom of the window, there is a status bar showing 'Relationship Quantity', '12 Records', and '(501)-Var = INT/AMAPSPlus | CSD=03/03/2009 | New'.

Lot Where-Used	Item Nbr	Parent Lot Nbr	Total Qty Issued	Total Qty Received	Lot Rel Source	Create Date	LTS Date	Lot Type	LTS Date	Comp Item Nbr	Expiration Date	Expi ratio	Ls
1	LTSP	V001	0.00	900.00		0 10/28/2008	10/28/2008	V = Vendor	10/28/2008	LTSP	01/26/2009		
2	LTSP	LOT1	75.00	0.00		0 10/28/2008	02/26/2009	R = Receiving	10/28/2008	LTSP	10/01/2009	B	01/
3	LTSP	LOT1-A	10.00	0.00		0 02/26/2009	02/26/2009	I = Internal	02/26/2009	LTSP	10/01/2009		
4	LTS2	>D102	0.00	78.00		0 02/26/2009	02/26/2009	M = Manufact.	02/26/2009	LTSP	01/26/2009		
5	LTS2	LOT1	30.00	0.00		0 10/28/2008	02/26/2009	M = Manufact.	10/28/2008	LTS2	01/26/2009	B	01/
6	LTS2	LOT2	0.00	0.00		0 02/26/2009	02/26/2009	I = Internal	02/26/2009	LTS2	01/26/2009		
6	LTS1	>D101	0.00	20.00		0 10/28/2008	10/28/2008	M = Manufact.	10/28/2008	LTS2	01/26/2009		
7	LTS1	LOT1	10.00	0.00		0 10/28/2008	02/19/2009	M = Manufact.	10/28/2008	LTS1	01/26/2009	B	01/
8	LTS1	1A	0.00	0.00		0 02/19/2009	02/19/2009	I = Internal	02/19/2009	LTS1	01/26/2009		
8	LTS1	LOT2A	0.00	0.00		0 02/19/2009	02/19/2009	I = Internal	02/19/2009	LTS1	01/26/2009		
9	LTS0	>D100	0.00	7.00		0 10/28/2008	10/28/2008	M = Manufact.	10/28/2008	LTS1	01/26/2009		
9	LTS0	LOT1	2.00	0.00		0 10/28/2008	02/19/2009	M = Manufact.	10/28/2008	LTS0	01/26/2009	B	01/
10	LTS0	CUST1000	0.00	0.00		0 10/28/2008	10/28/2008	C = Customer	10/28/2008	LTS0	01/26/2009		
10	LTS0	LOT1AA	0.00	0.00		0 02/19/2009	02/26/2009	I = Internal	02/19/2009	LTS0	01/26/2009		
5	LTS2	LOT3	0.00	0.00		0 02/26/2009	02/26/2009	M = Manufact.	02/26/2009	LTS2	06/08/2009		
3	LTS2	>D102	0.00	78.00		0 10/28/2008	02/26/2009	M = Manufact.	02/26/2009	LTSP	01/26/2009		
4	LTS2	LOT1	30.00	0.00		0 10/28/2008	02/26/2009	M = Manufact.	10/28/2008	LTS2	01/26/2009	B	01/
5	LTS2	LOT2	0.00	0.00		0 02/26/2009	02/26/2009	I = Internal	02/26/2009	LTS2	01/26/2009		
5	LTS1	>D101	0.00	20.00		0 10/28/2008	10/28/2008	M = Manufact.	10/28/2008	LTS2	01/26/2009		
6	LTS1	LOT1	10.00	0.00		0 10/28/2008	02/19/2009	M = Manufact.	10/28/2008	LTS1	01/26/2009	B	01/
7	LTS1	1A	0.00	0.00		0 02/19/2009	02/19/2009	I = Internal	02/19/2009	LTS1	01/26/2009		
7	LTS1	LOT2A	0.00	0.00		0 02/19/2009	02/19/2009	I = Internal	02/19/2009	LTS1	01/26/2009		
7	LTS0	>D100	0.00	7.00		0 10/28/2008	10/28/2008	M = Manufact.	10/28/2008	LTS1	01/26/2009		
8	LTS0	LOT1	2.00	0.00		0 10/28/2008	02/19/2009	M = Manufact.	10/28/2008	LTS0	01/26/2009	B	01/
9	LTS0	CUST1000	0.00	0.00		0 10/28/2008	10/28/2008	C = Customer	10/28/2008	LTS0	01/26/2009		
9	LTS0	LOT1AA	0.00	0.00		0 02/19/2009	02/26/2009	I = Internal	02/19/2009	LTS0	01/26/2009		
4	LTS2	LOT3	0.00	0.00		0 02/26/2009	02/26/2009	M = Manufact.	02/26/2009	LTS2	06/08/2009		

The lot trace information maintained by LTS+PLUS is similar to bill of material and where-used information because it provides both downward and upward traceability. From the downward bill of material or source perspective, LTS+PLUS traces the origin of component lots and serial numbers. For example, a particular lot or serial number for an item shipped against a customer order or received against a manufacturing order is traced back to the original sources of all lower-level items used to produce it. From the upward or where-used perspective, LTS+PLUS traces the destination of lots and serial numbers. For example, a particular lot or serial number for an item received against a purchase or manufacturing order is traced up to all higher-level orders that used the lot.

### Control by Location, Lot Number and Status

The physical management of controlled and traced items poses several questions. Can more than one lot be stored per location? Are traced or controlled items allowed in a particular location? How do you store a lot with multiple statuses? LTS+PLUS answers these questions by combining flexibility with extensive control capabilities.

In AMAPS+PLUS, the storage of material is identified by item, location, lot type and lot status, inspection status, or quality control (QC) status. This approach allows you to store any combination of different items, lots, or portions of lots in the same location. You can also store portions of the same lot in more than one location. AMAPS+PLUS recognizes seven different QC statuses for controlling materials:

- Uninspected (UI)
- Inspected and approved (AP)
- Accepted with conditional approval (CD)
- Accepted with restricted approval (RS)
- Accepted but quarantined (QT)
- Inspected and rejected (RJ)
- In Material Review Board (IM)

Item Lots2	Lot Number	Item Nbr	Vendor Number	Lot Type	Total Qty Received	Total Qty Issued	Lot Net Qty Transfer	Lot Net Qty Adj	Remaining Qty	Expiration Date	Order Nbr Ref	Lot/Order Ref	It
1	PO360001001	100008	3600	P = Purch	1610	0	-1610	0	0	05/08/2009	PO3600 01001	= Unk COLOR, ANN	
2	R-00001002-1	100008	3600	R = Rece	0	150	1610	0	1460	05/08/2009	PO3600 01001	E = Exi COLOR, ANN	
3	R-00001002	100008	3600	P = Purch	0	0	0	200	200	01/26/2008		C = Col COLOR, ANN	
4	XX11-325	100008	3600	V = Vendi	1610	0	-1610	0	0	05/08/2009	PO3600 01001	= Unk COLOR, ANN	
5	R-00001011	100038	3600	P = Purch	0	0	0	1000	1000	02/17/2008		C = Col COLOR, BLAC	
6	R-00001014	100039	3600	P = Purch	0	0	0	50	50	10/14/2009		C = Col COLOR, #2	
7	R-00001002	100039	3600	R = Rece	0	0	100	0	100	05/08/2009	PO3600 02001	E = Exi COLOR, #2	
8	PO360002001	100039	3600	P = Purch	100	0	-100	0	0	05/08/2009	PO3600 02001	= Unk COLOR, #2	
9	R-00000811	100052	3600	P = Purch	0	0	0	600	600	10/20/2009		C = Col COLOR, TUR	
10	PO360003001	120041	3600	P = Purch	40	0	-40	0	0	05/08/2009	PO3600 03001	= Unk FLVR, #2	
11	R-00000006	120041	3600	P = Purch	0	0	0	600	600	08/25/2009		C = Col FLVR, #2	
12	R-00000006-1	120041	3600	R = Rece	0	0	40	0	40	05/08/2009	PO3600 03001	C = Col FLVR, #2	
13	DT-406-11	120041	3600	V = Vendi	40	0	-40	0	0	05/08/2009	PO3600 03001	= Unk FLVR, #2	
14	LL-250-63	120247	3600	V = Vendi	160	0	-160	0	0	05/08/2009	PO3600 04001	= Unk COLOR, #3	
15	R-00000200	120247	3600	P = Purch	0	0	0	150	150	09/25/2009		C = Col COLOR, #3	
16	R-00000200-1	120247	3600	R = Rece	0	0	160	0	160	05/08/2009	PO3600 04001	C = Col COLOR, #3	
17	PO360004001	120247	3600	P = Purch	160	0	-160	0	0	05/08/2009	PO3600 04001	= Unk COLOR, #3	

### Multiple Lot Types

All final products shipped to customers start as purchased components. As raw materials and purchased components flow through the manufacturing process, they are consumed by intermediate parent items, which, in turn, are consumed. Ultimately, the product shipped to a customer is the result of this interrelated chain of component-parent relationships. To provide complete control and traceability of a product's material and process composition, it is necessary to track material through each of these various stages. LTS+PLUS provides this capability through the use of nine lot types.

Each lot type has a unique identifier that enables LTS+PLUS to provide a complete history for each item, both "downward" from the parent to the components and "upward" from the component to the parents. The nine lot types managed by LTS+PLUS are:

- Purchase lots
- Receiving lots
- Vendor lots
- Rework lots
- Serial number lots
- Internal lots
- Customer lots
- Destruction lots
- Manufacturing

### Automatic Retest and Expiration Notification

Since the quality of a lot, and hence its status, can change with time, you must have an effective method of performing cyclical quality assurance. For example, materials may have a limited shelf life where they must be retested or

disposed of when they reach a certain date. Alternatively, some materials or products must be quarantined to allow aging before they are tested, used, or sold. LTS+PLUS manages your cyclical quality assurance activities by individual lot using the following date controls:

<b>Last Test Date:</b>	Most Recent Date Material was tested
<b>Test Date:</b>	Date a lot must be retested to retain accepted status
<b>Expiration Date:</b>	The date beyond which a lot cannot be used

You can enter the test and expiration dates for each lot or have them system-calculated based on the default test and expiration periods for the item.

### Receipt Control

Receipt Control gives you the capability to prevent the receipt of lots that you deem defective. The capability prevents the contamination of your production environment with unwanted and potentially deleterious materials.

### Serial Number Control

In many lot-trace environments, individual items must be tracked through the manufacturing process. This level of tracking is accomplished by assigning a unique identifier or serial number. LTS+PLUS gives you flexibility in assigning and recording the use of serial numbered items without sacrificing control. You can enter serial numbers either individually or in blocks specified by beginning and ending serial numbers. LTS+PLUS also gives you options when recording issues of serial numbered components. Depending upon your company's manufacturing procedures, you can enter the serial numbers either at the time of issue or when recording the order's completion.

### Lot Tracking, Traceability, and Accountability

Split lots result either from multiple deliveries of a single manufacturing order or from the manual reassignment of a new lot number to a portion of an existing lot. LTS+PLUS provides control and traceability for as many lot splits as necessary, ensuring maximum manufacturing flexibility. The Lot-to-Lot Transfer window allows you to transfer material from one lot to another to either combine or split lots or change the status and location of the material.

### Summary

LTS+PLUS gives you the controls you need to prevent product quality problems, to minimize your quality defects and to meet all governmental certification audits. LTS+PLUS eliminates redundancy of information, thereby reducing your cost of quality. In turn, this gives your personnel the time to better monitor your manufacturing processes and the materials received from your vendors. The result is better business and satisfied customers through quality products at lower costs.

Ask Amaps AMQ

File Goto Display Format Inquiry SaveSpread RestoreSpread Stop Window Help

**Lot Traceability**

Lot Where-Used      Conditional Components      Lot Activity

Item Lots      Lot Detail      Lot Structure

Item Number: **LTSP**      Display Lot Activity      From Date (Optional): [ ]      Options:  Receipts  Issues  Transfers  Moves      Item Description: **PURCHASED LTS ITEM**

Lot Activity	Trans Code	System Create	System Create	From Order Nbr	From Lot Nbr	To Lot Nbr	To Order Nbr	Original Qty	From Location Id	From Qty	To Location Id	To Qty Type	Te
1	T12 = Ur	10/28/2000	16:09:33		V001	LOT1		900.00	INSP	UI	INSP	UI	
2	R12 = Re	10/28/2000	16:09:33	P0100 01001		LOT1		900.00	LOT1		INSP	UI	
3	T12 = Ur	10/28/2000	16:09:33		P010001001	V001		900.00	INSP	UI	INSP	UI	
4	M22 = M	10/28/2000	16:09:57	P0100 01001		LOT1		300.00	INSP	UI	INSP	AP	
5	M52 = Lc	10/28/2000	16:09:57		LOT1			300.00		UI		AP	
6	M12 = M	10/28/2000	16:12:31		LOT1			300.00	INSP	AP	LOC4	AP	
7	I12 = Iss	10/28/2000	16:13:05		LOT1		XD102	100.00	LOC4	AP			
8	M52 = Lc	01/15/2000	11:09:34		LOT1			600.00		UI			CD
9	M12 = M	01/15/2000	11:09:34		LOT1			200.00	LOC4	AP	LOC4		CD
10	M22 = M	01/15/2000	11:09:34	P0100 01001		LOT1		600.00	INSP	UI	INSP		CD
11	M52 = Lc	01/15/2000	11:09:34		LOT1			200.00		AP			CD
12	I12 = Iss	02/26/2000	10:23:16		LOT1-A		XD102	10.00	LOC4	CD			
13	I11 = Re	02/26/2000	15:09:25		LOT1		XD102	40.00	INSP	AP			
14	I12 = Iss	02/26/2000	15:11:25		LOT1		XD102	15.00	INSP	CD			
15	T12 = Ur	02/26/2000	15:23:36		LOT1	LOT1-A		110.00	LOC4	CD	LOC4		CD
16	R12 = Re	03/03/2000	17:12:10	P0300 03002		LOT2		18.00	LOT2		INSP	UI	
17	T12 = Ur	03/03/2000	17:12:10		P030003002	LOT2		18.00	INSP	UI	INSP	UI	

Lot Number-From: [ ]      2 Records      [501]-Var = INT/AMAPSPPlus      CSD=03/03/2009      New