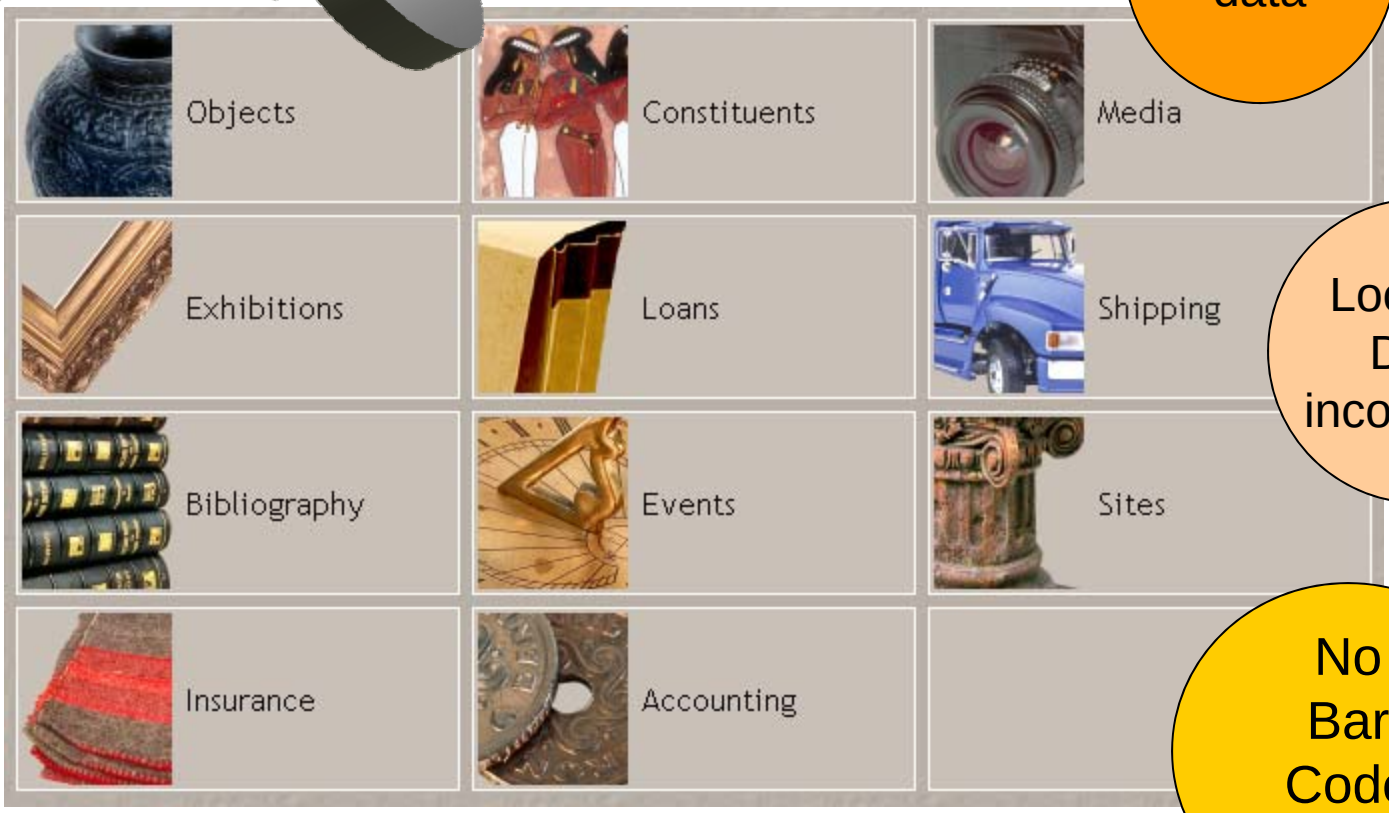
TMS Collection Management System - 1997



Tombstone data

Location Data incomplete

No Bar Code functions

In search of....

The perfect bar code system

Parallel bar code database...??

- Extensive man-power & funding required
- Object & location bar code fields already in TMS
- Long term – the collection management
  - system will be TMS

Develop **TMS** bar code Applet..?

Basic bar code needs

Unique identifier, each object

Data base

Print bar codes

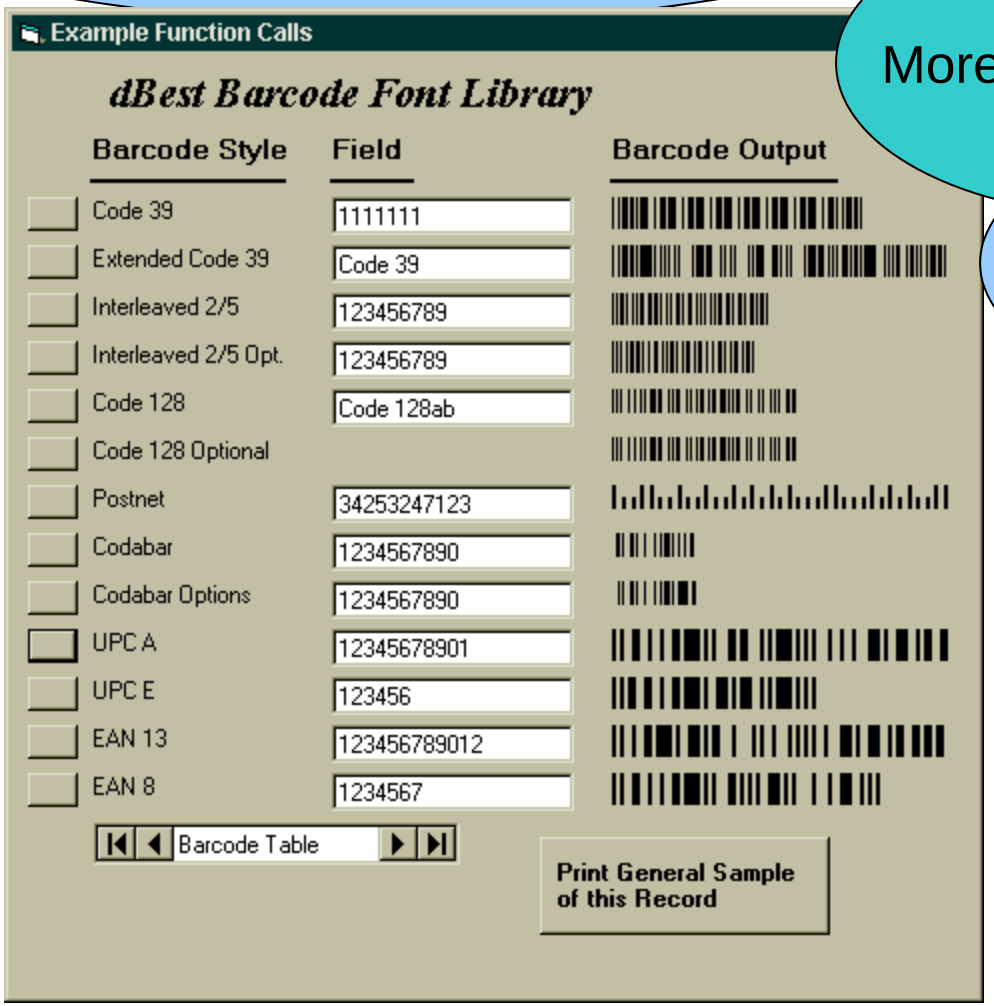
Upload location changes

Label objects & locations

Track movement & location

Scan bar codes

Just what is a bar code?



More than just a font

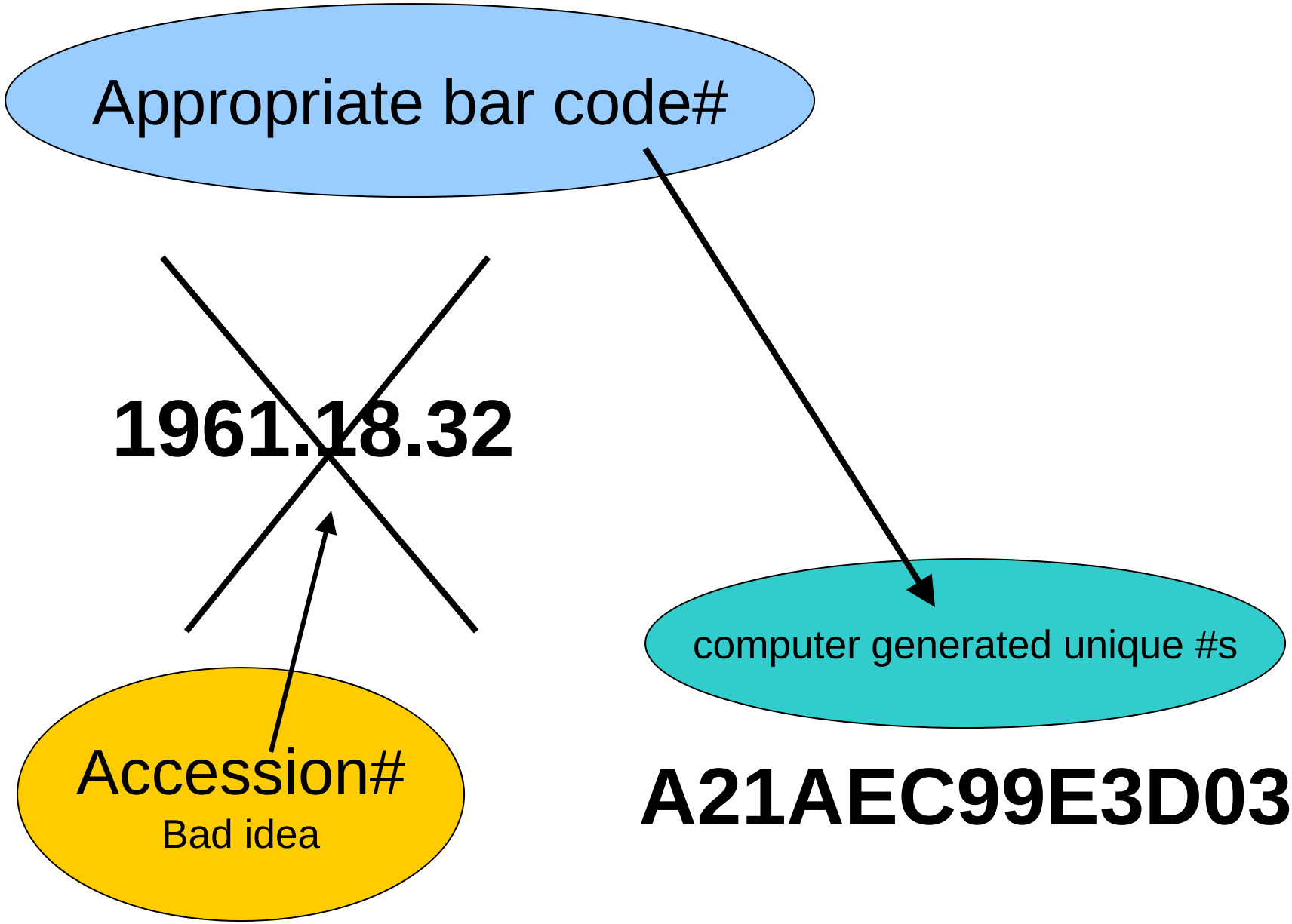
Algorithm

start & stop bits

checksum

Man against the machine

- Object's identity reduced to a bar code
- Dependent on machines to read bar codes
- Bar code must be unique
  - Humans should not be able to alter it
- Reduced identity requires 100% correct scanning (checksum)


Appropriate bar code#
1961.18.32
computer generated unique #s
Accession#
Bad idea
A21AEC99E3D03

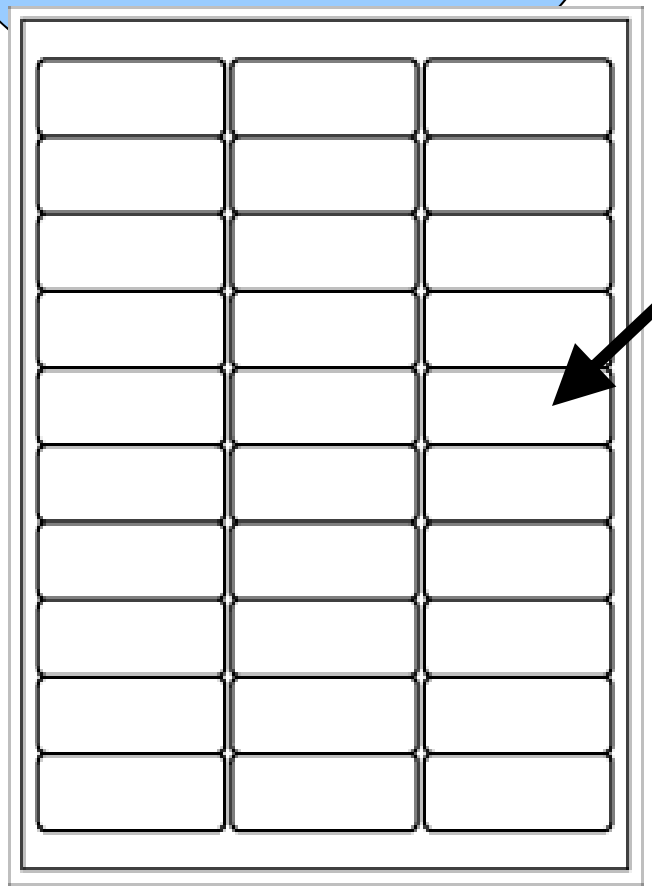
Bar code font type – Impacts scanner selection

Code 128 font sizes

Each font size is Different character set

Font style	1871.3
Code 128AB	
Code 128AB Short	
Code 128AB Short HR	1 8 7 1 . 3
Code 128AB Tall	
Code 128AB Tall HR	1 8 7 1 . 3
Code 128C	
Code 128C HR	162322 161318
Code 128C HR Short	162322 161318
Code 128C HR Tall	162322 161318
Code 128C Short	
Code 128C Tall	

Printing problems in paradise



Not efficient

Bar code "real world" printing

BC print function rewritten

Bar code printers

Zebra model Z4M

- 203 & 300 dpi

Bulk printing only

too much printer for pack team workstations

TLP2844

- 203 & 300 dpi

Great for Low volume workstations

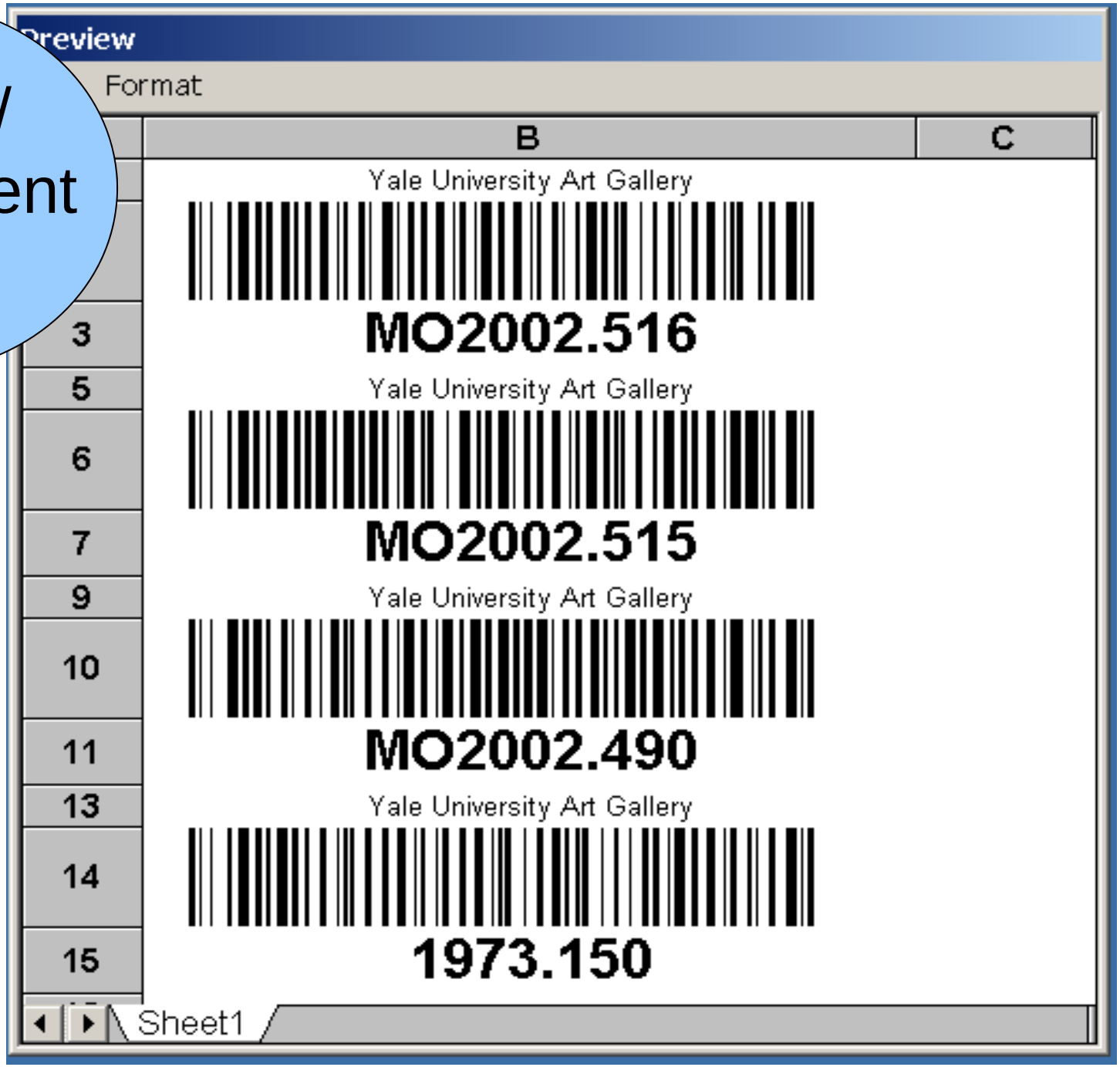
Object labels

Fonts
large
as possible

- Header
  - Arial 8 normal Yale University Art Gallery
- Body
  - AdvC128c, 20 bar code
- Footer
  - Arial 16 bold object# or container name

Poorly lit storage areas

Object/ Component labels



Containers

Major TMS problem

Bad bar code logic

Can edit TMS container names allowing duplicates

Art Gallery move strategy built around containers

Shipping & storage efficiency

Warehouse shelving built for containers

Object protection – temporary storage

Solution

Excel spdsht bar code generator

Elfring fonts

Designed to match TMS

Print multiple labels

Tools Data Window Help

Code 128AB HR 48

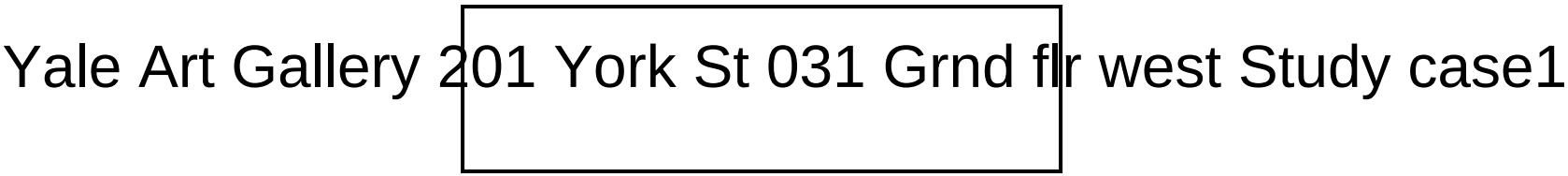
Reply with Changes... End Review...

B14 =Bar128B(A14)

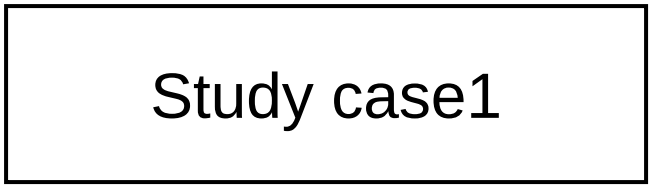
	A	B	C	D
1	**Container Barcode Label Printing Procedure**			
2	A container barcode label is created by typing a container name in to the cell under the Name column. Th			ner name in the adjacent cell.
3	To print the container name select the cell under the Name			
4	Click File, Print Area, Set Print Area.			
5	Click File Print...			
6	To print the container barcode select the cell under 128AB HR			
7	Click File, Print Area, Set Print Area.			
8	Click File Print...			
9				
10				
11				
12				
13	Name	128AB HR	128AB Short HR	128AB Tall HR
14	etb344			
15				
16				
17				
18				
19				

Location labels - New challenge

- Storage locations too large for label
  - Text centered in footer, unreadable



- Drop left sections until location fits on label



Location labels - optimized

- Designed location designations to fit on label
- Warehouse name shortened in TMS

LSF = Library Storage Facility

LSF, A, 01L	screens for paintings
LSF, EL, 01A	container aisles

Location labels

Header

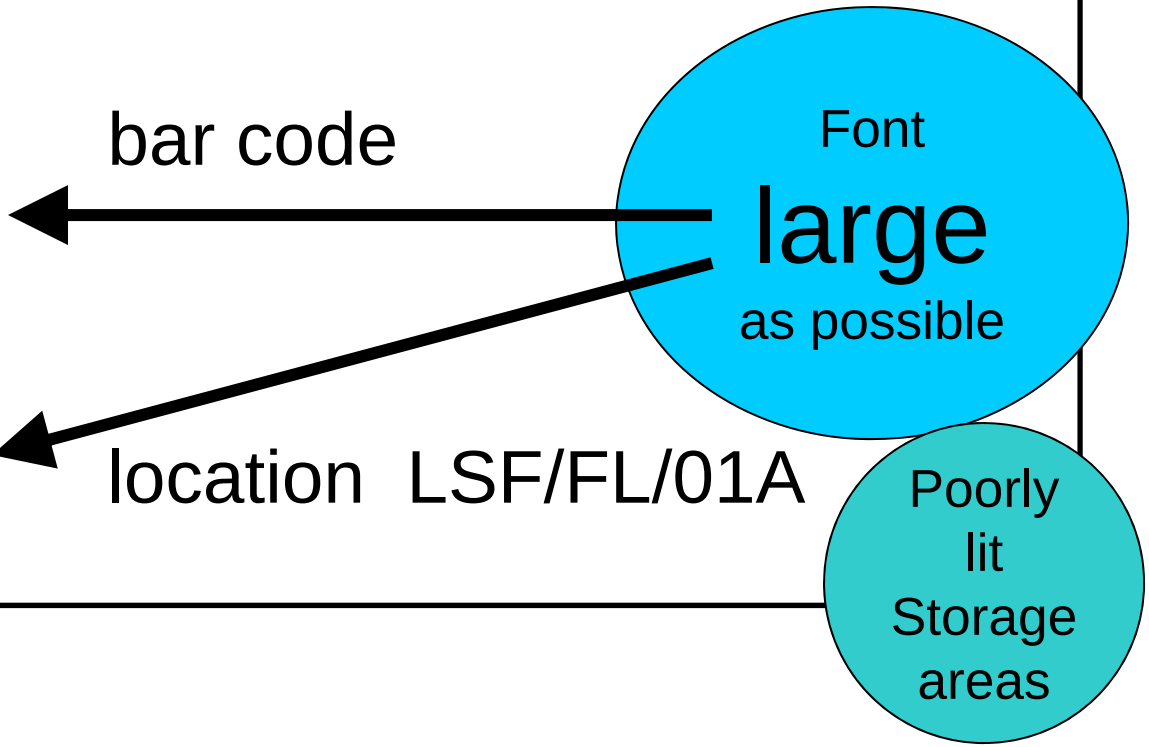
– Arial 8 normal LSF - Yale University Art Gallery

- Body

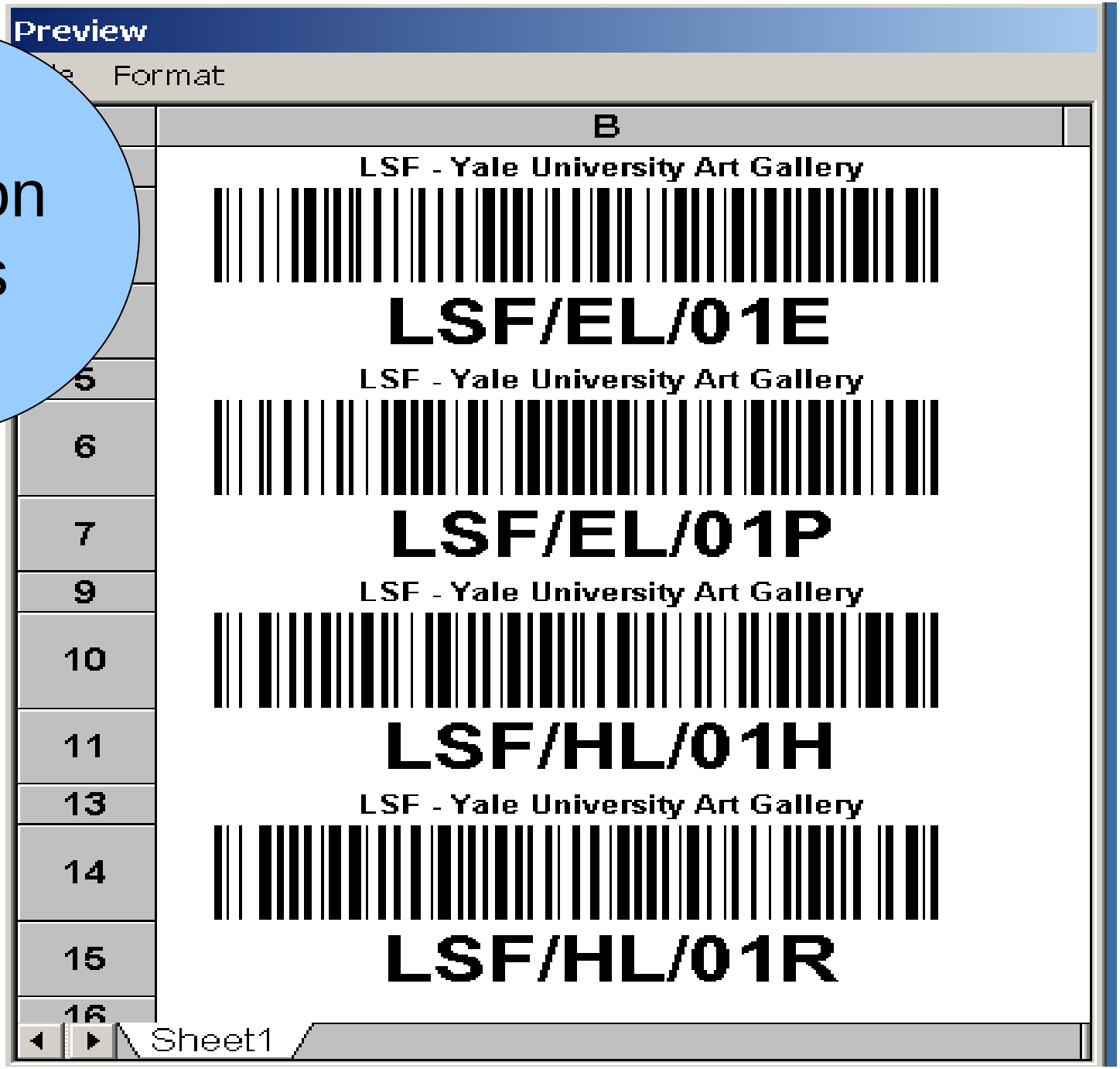
– AdvC128c, 20 bar code

- Footer

– Arial 16 bold location LSF/FL/01A



Location labels



Bar code table in TMS

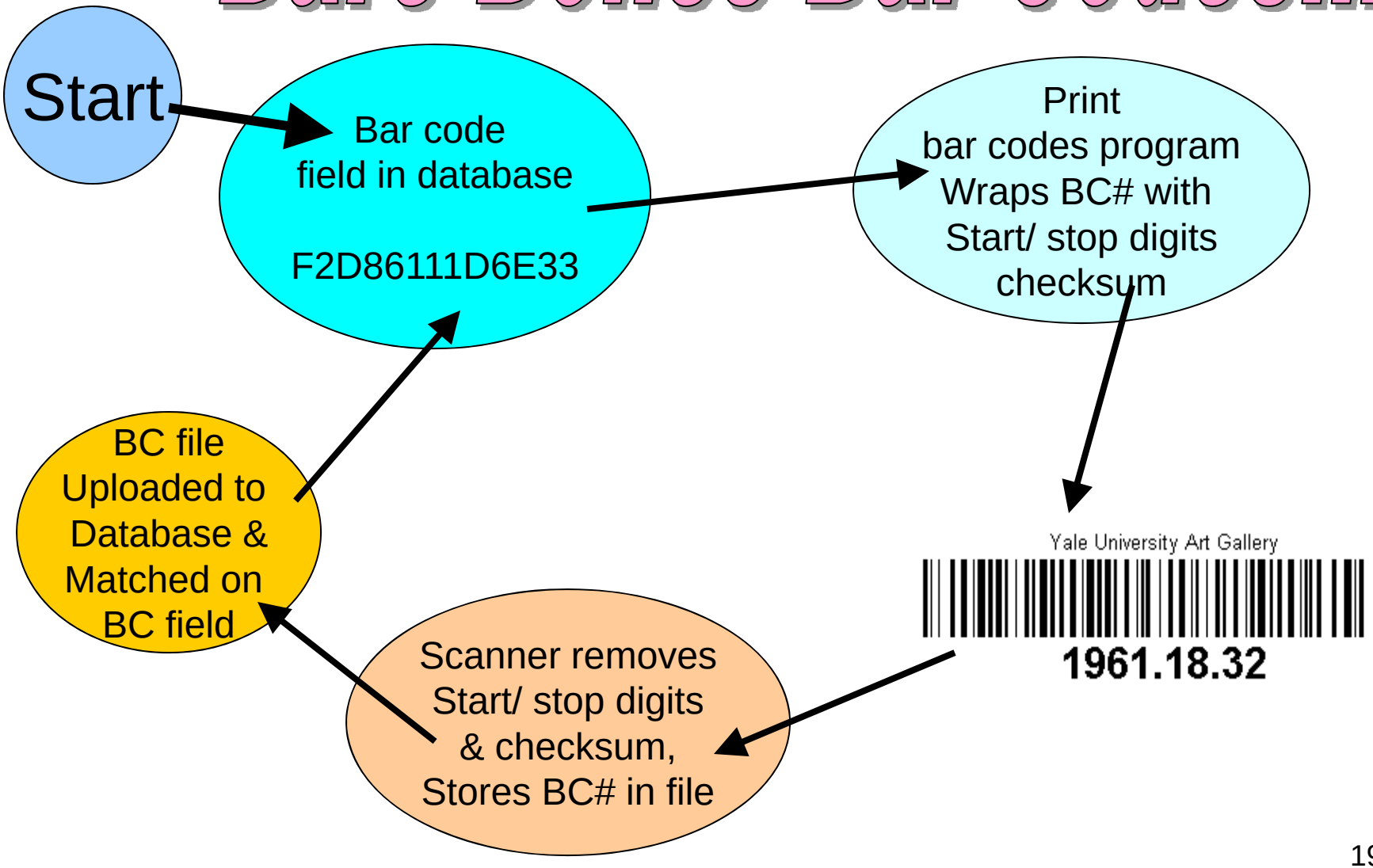
Bar code numbers

Data in Table 'BCLabels' in 'TMS' on 'TMS01'

LabelID	LabelUUID	TableID	ID	isAchievable	LoginID	EnteredDate	ParentID
1	650A5B6B41222	94	1	0	dparse	10/9/2002 10:42:2	-1
2	6A0CA46CAFDD3	108	1	0	dparse	10/9/2002 10:42:2	1
3	47026FA7DCCF2	94	2	0	dparse	10/9/2002 10:42:2	-1
4	C009412623703	108	2	0	dparse	10/9/2002 10:42:2	3
5	D4A7D64964DF2	94	3	0	dparse	10/9/2002 10:42:2	-1
6	9B2FD3697A353	108	3	0	dparse	10/9/2002 10:42:2	5
7	523D0448C47F2	94	4	0	dparse	10/9/2002 10:42:2	-1
8	339E65B9AD3E3	108	4	0	dparse	10/9/2002 10:42:2	7
9	CA2F7316B81B2	94	5	0	dparse	10/9/2002 10:42:2	-1
10	5A76A01C99A43	108	5	0	dparse	10/9/2002 10:42:2	9
11	F956745FE02D2	94	6	0	dparse	10/9/2002 10:42:2	-1
12	F2D86111D6E33	108	6	0	dparse	10/9/2002 10:42:2	11
13	822E673294382	94	7	0	dparse	10/9/2002 10:42:2	-1
14	8008FB40E7C23	108	7	0	dparse	10/9/2002 10:42:2	13
15	E9F0504D5F8F2	94	8	0	dparse	10/9/2002 10:42:2	-1
16	3F64A25BE91C3	108	8			10/9/2002 10:42:2	15
17	BF40A7FFA7E92	94	9			10/9/2002 10:42:2	-1
18	E8A95B24E1AE3	108	9			10/9/2002 10:42:2	17
19	A836C35744F82	94	10			10/9/2002 10:42:2	-1
20	A21AEC99E3D03	108	10			10/9/2002 10:42:2	19

Always 13 characters

Bare Bones Bar Codes...



We can print bar codes, so….

What's The next task?

Track object/ container movement from Art Gallery to warehouse

- Record new object/ container location in warehouse
- Upload recorded locations to TMS database

Laptop & tethered scanner

Too awkward, Need mobility

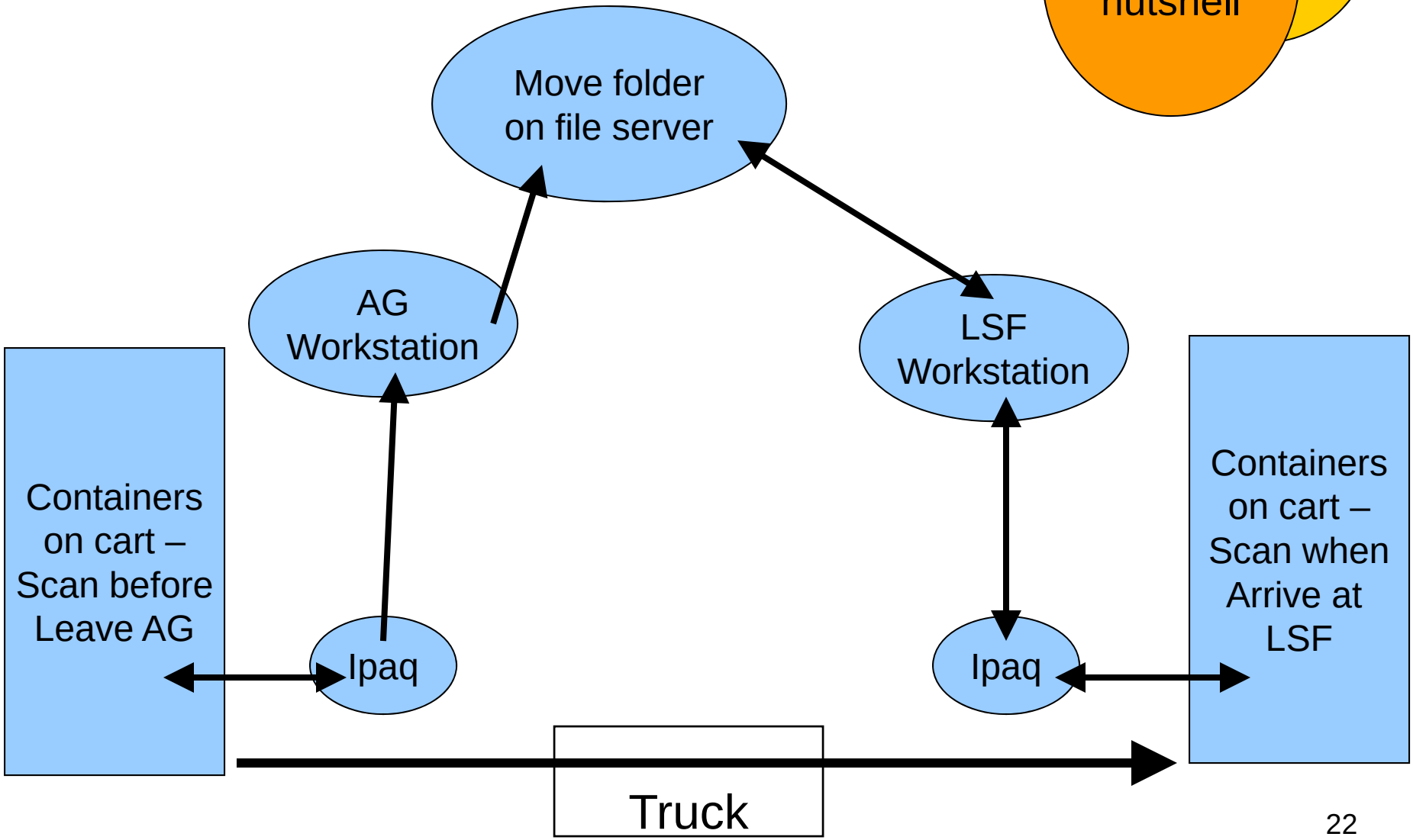
Warehouse Shelving 30’ tall, container storage

Ipaq & scanner

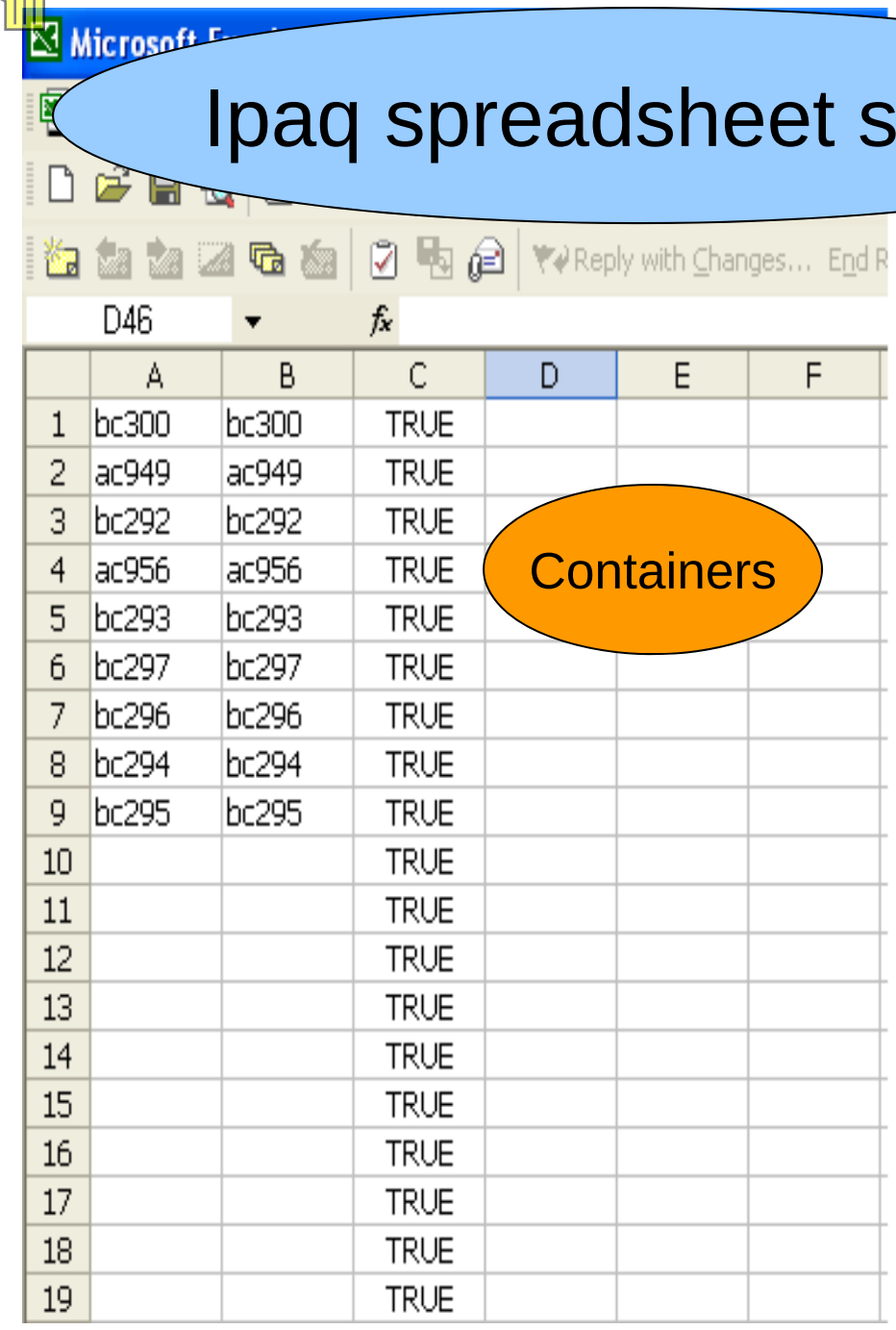
Excel spdsht

Tracking the inventory – AG to LSF

In a nutshell



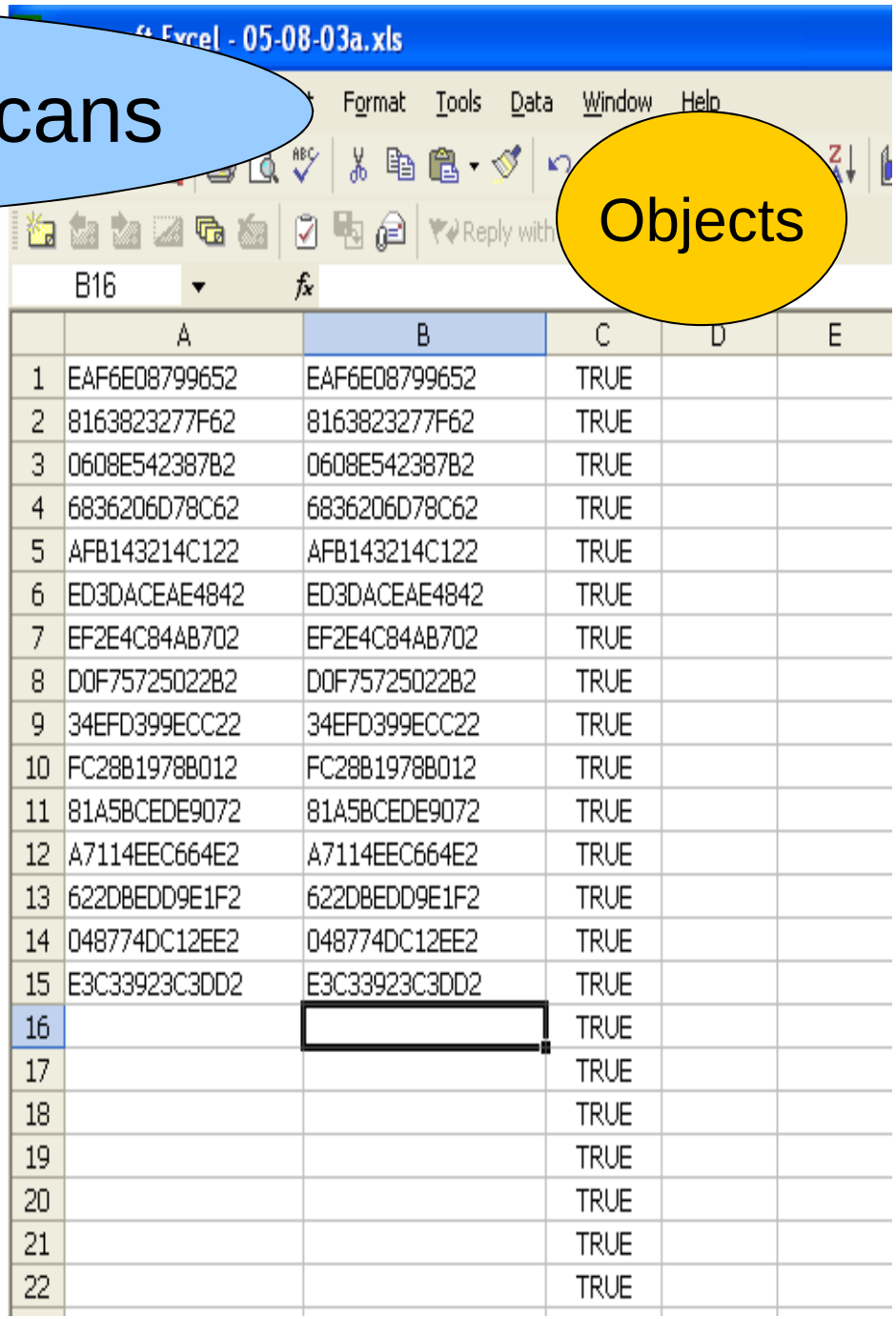
Ipaq spreadsheet scans



D46

	A	B	C	D	E	F
1	bc300	bc300	TRUE			
2	ac949	ac949	TRUE			
3	bc292	bc292	TRUE			
4	ac956	ac956	TRUE			
5	bc293	bc293	TRUE			
6	bc297	bc297	TRUE			
7	bc296	bc296	TRUE			
8	bc294	bc294	TRUE			
9	bc295	bc295	TRUE			
10			TRUE			
11			TRUE			
12			TRUE			
13			TRUE			
14			TRUE			
15			TRUE			
16			TRUE			
17			TRUE			
18			TRUE			
19			TRUE			

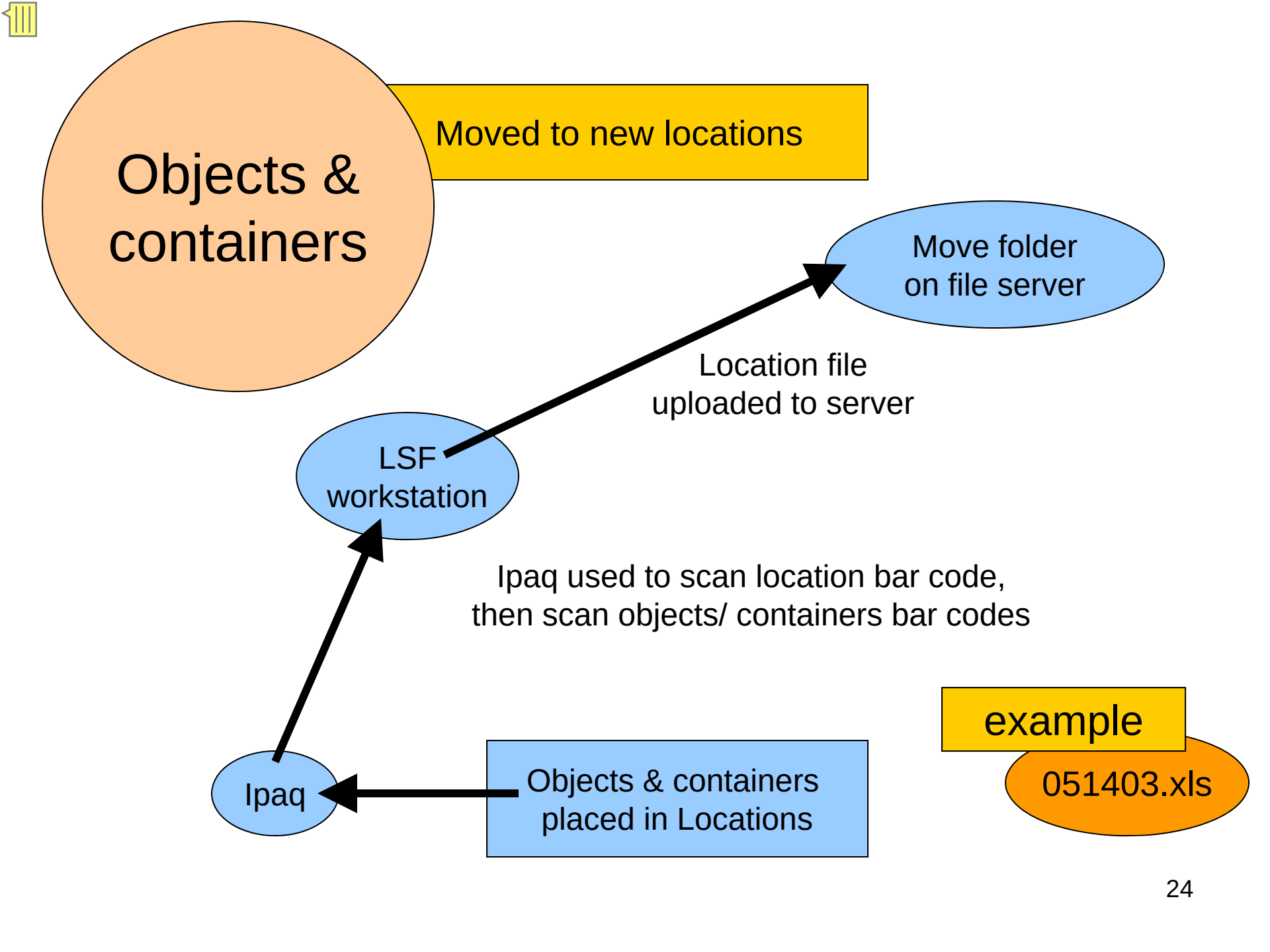
Containers



B16

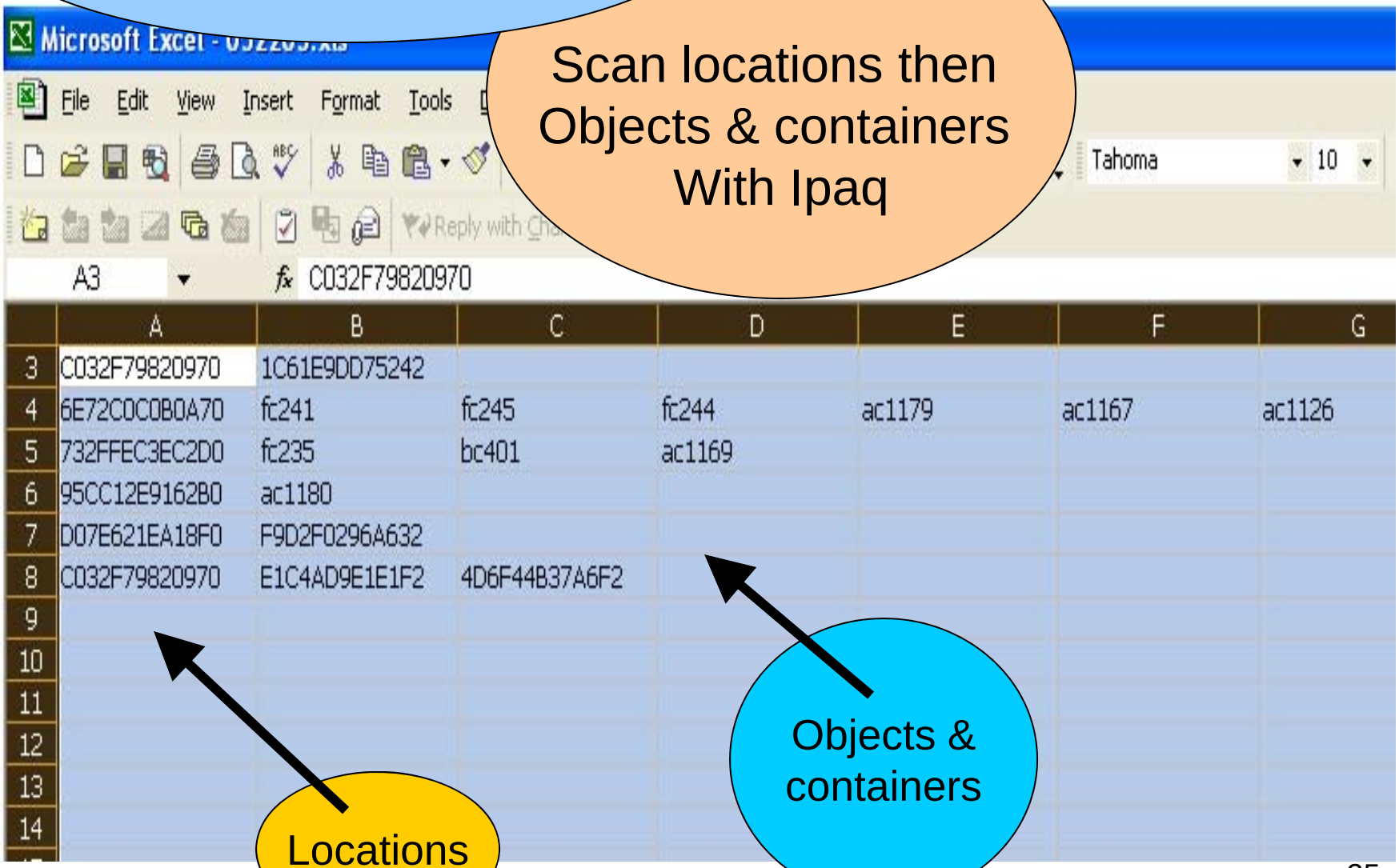
	A	B	C	D	E
1	EAF6E08799652	EAF6E08799652	TRUE		
2	8163823277F62	8163823277F62	TRUE		
3	0608E542387B2	0608E542387B2	TRUE		
4	6836206D78C62	6836206D78C62	TRUE		
5	AFB143214C122	AFB143214C122	TRUE		
6	ED3DACEAE4842	ED3DACEAE4842	TRUE		
7	EF2E4C84AB702	EF2E4C84AB702	TRUE		
8	D0F75725022B2	D0F75725022B2	TRUE		
9	34EFD399ECC22	34EFD399ECC22	TRUE		
10	FC28B1978B012	FC28B1978B012	TRUE		
11	81A5BCEDE9072	81A5BCEDE9072	TRUE		
12	A7114EEC664E2	A7114EEC664E2	TRUE		
13	622DBEDD9E1F2	622DBEDD9E1F2	TRUE		
14	048774DC12EE2	048774DC12EE2	TRUE		
15	E3C33923C3DD2	E3C33923C3DD2	TRUE		
16			TRUE		
17			TRUE		
18			TRUE		
19			TRUE		
20			TRUE		
21			TRUE		
22			TRUE		

Objects

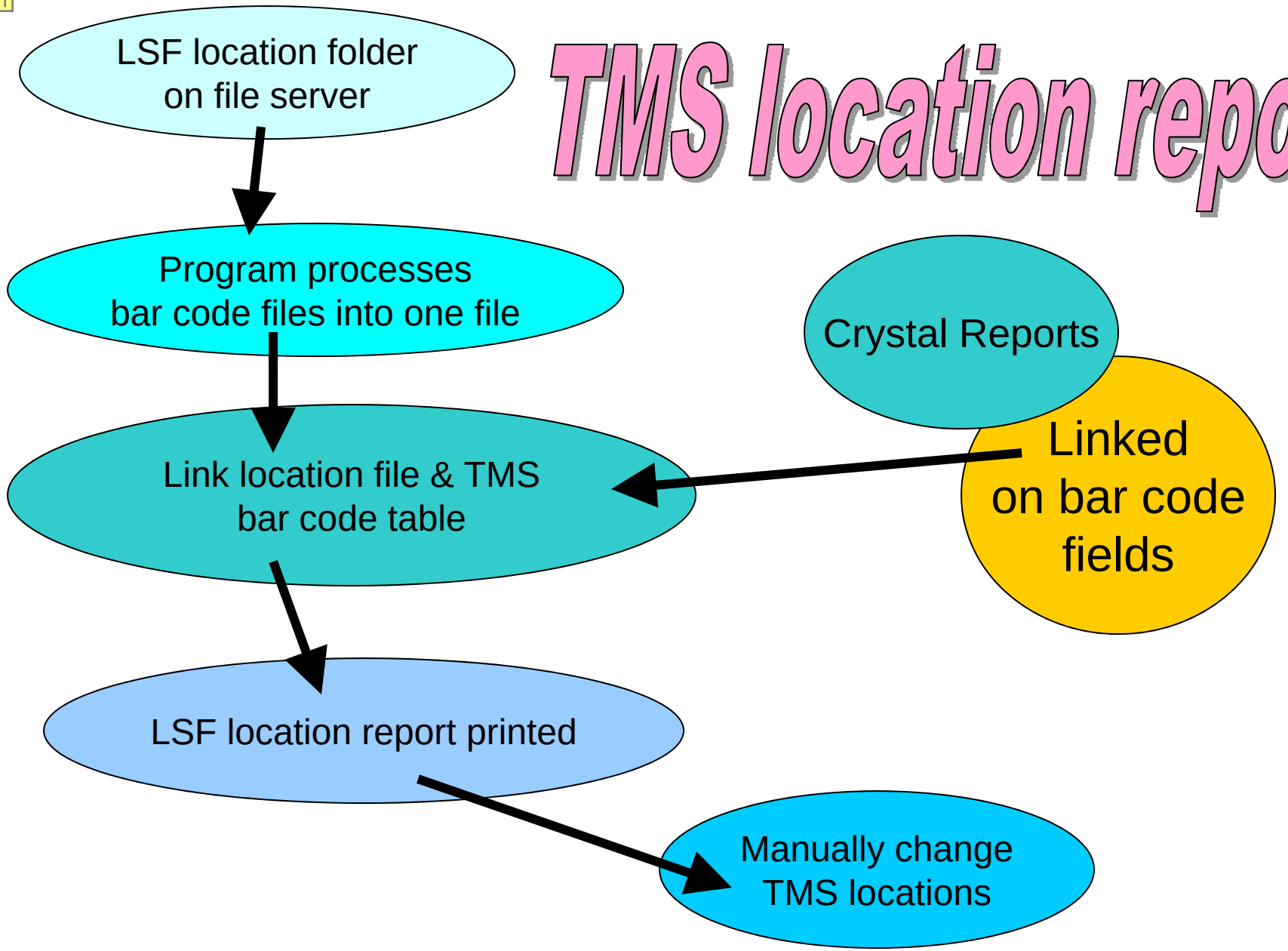

Objects & containers
Moved to new locations
Move folder on file server
Location file uploaded to server
LSF workstation
Ipaq used to scan location bar code, then scan objects/ containers bar codes
example
051403.xls
Ipaq
Objects & containers placed in Locations

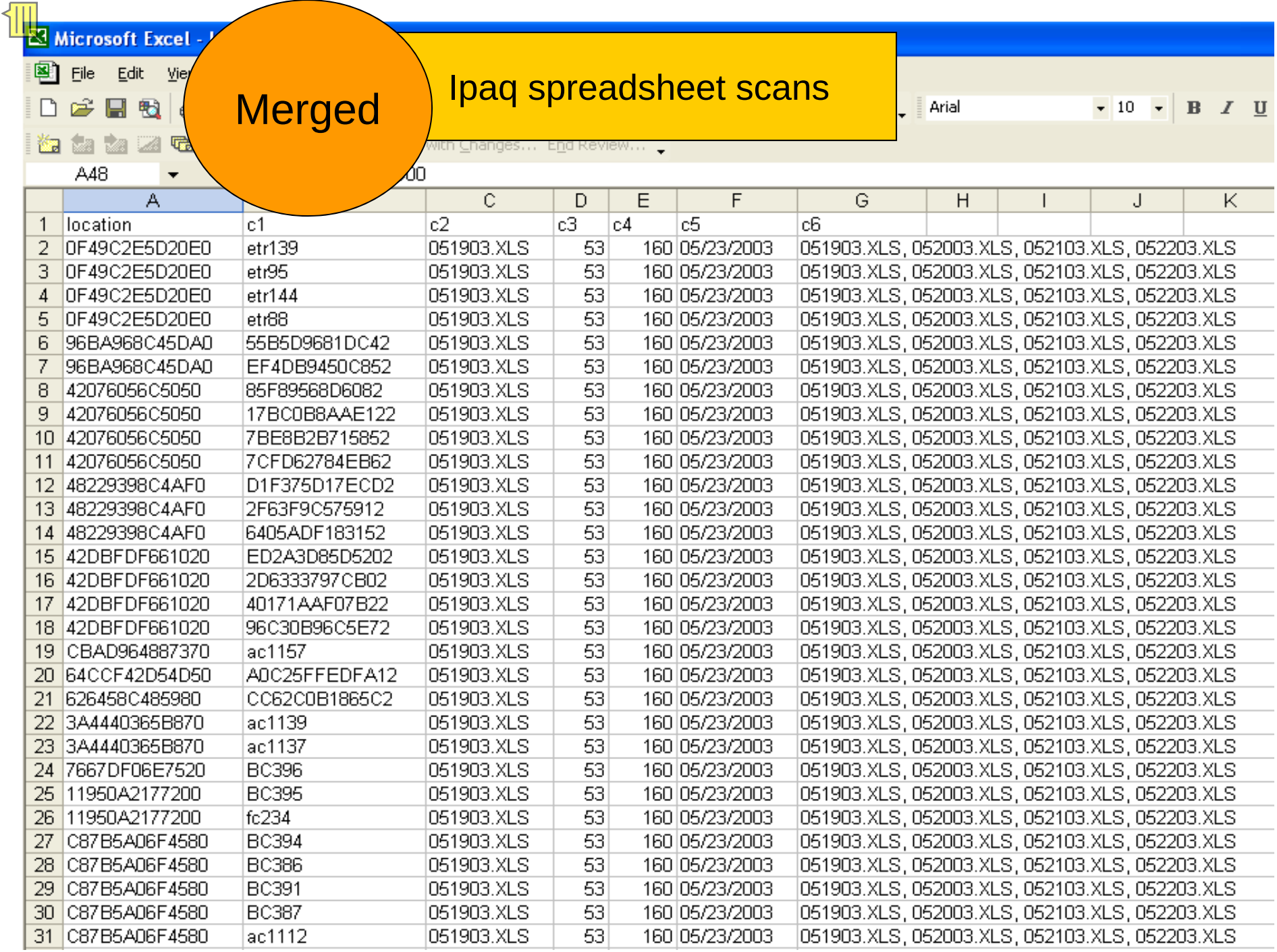
Ipaq location spdshts

Scan locations then
Objects & containers
With Ipaq



TMS location report

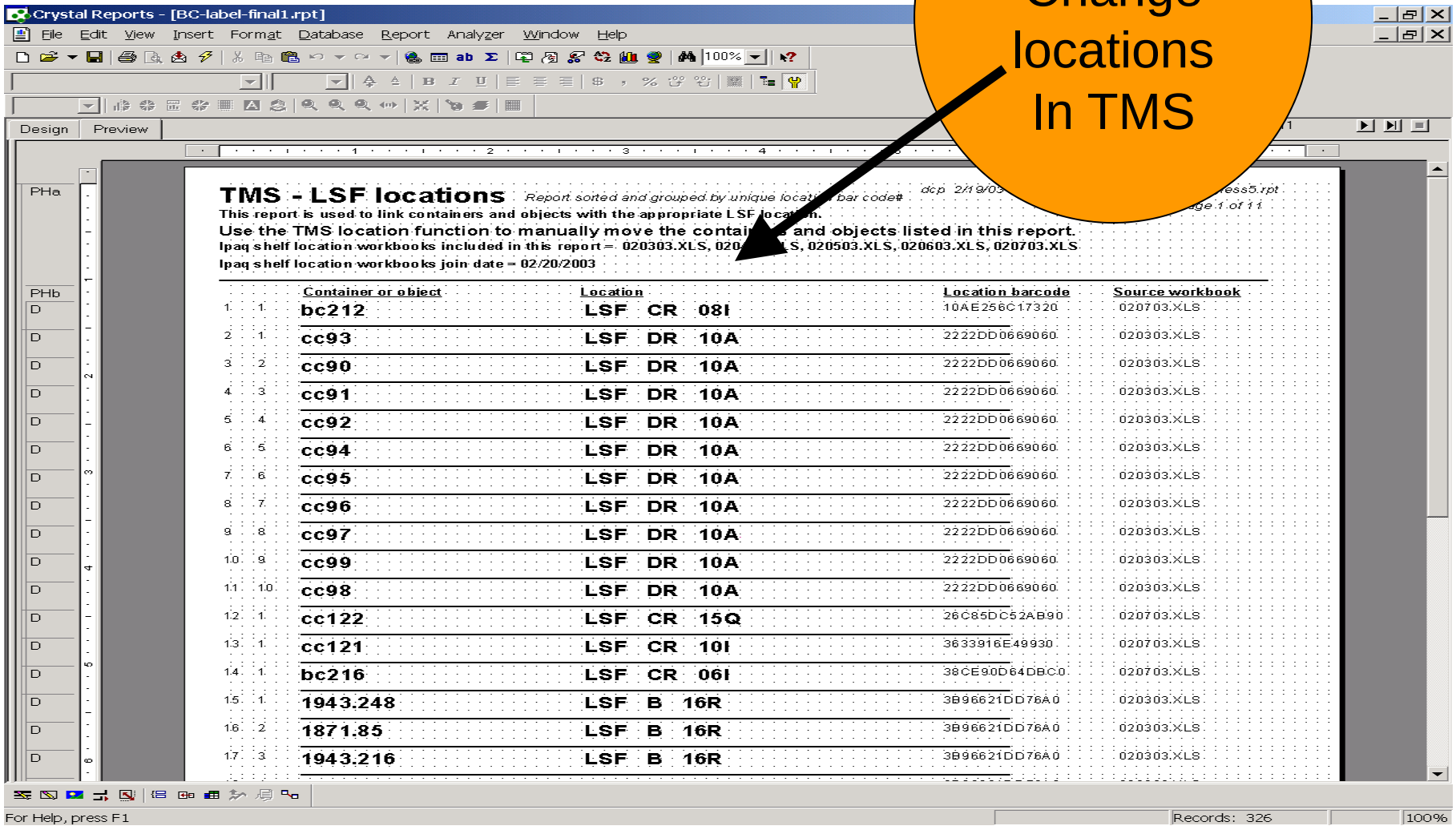




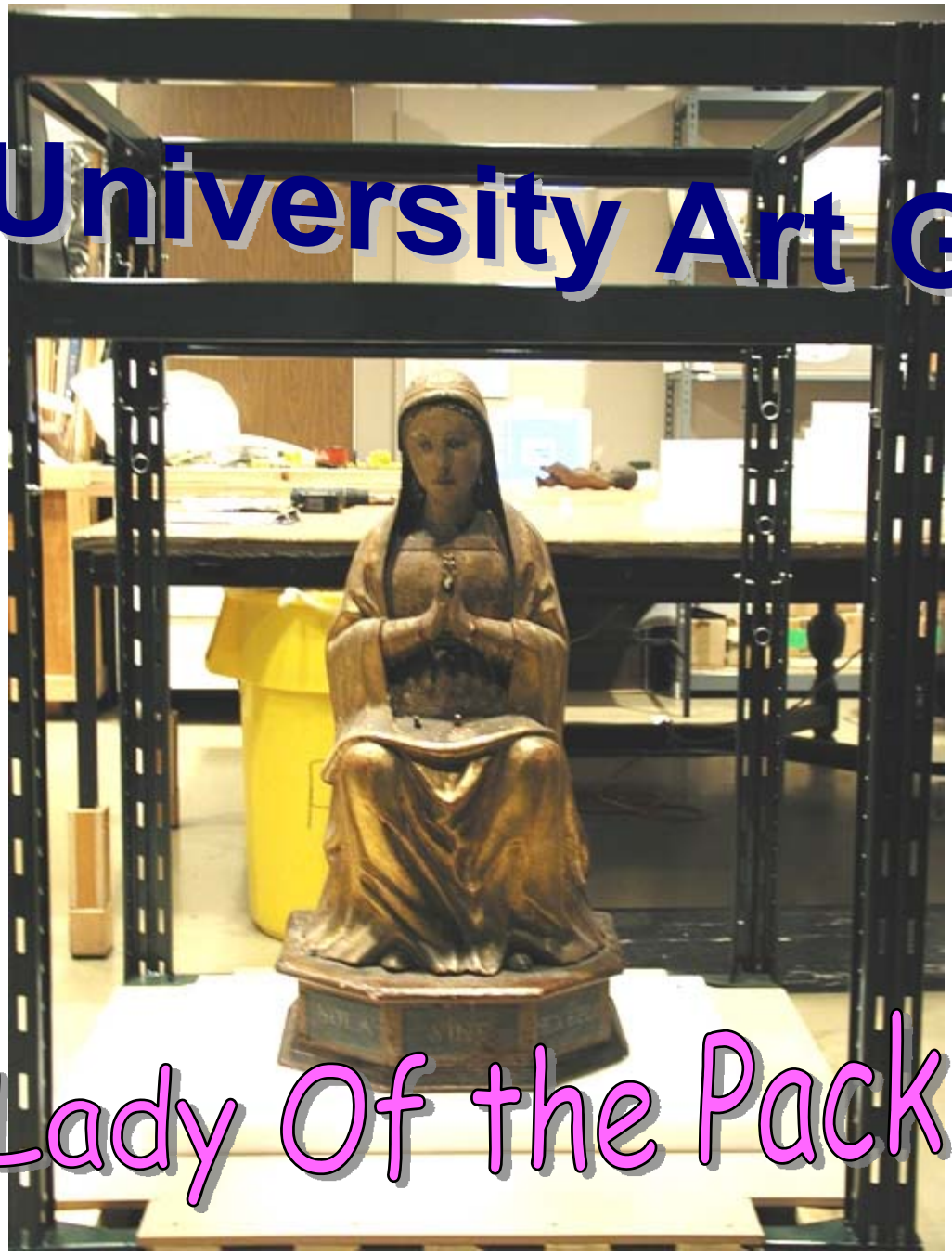
	A	B	C	D	E	F	G	H	I	J	K
1	location	c1	c2	c3	c4	c5	c6				
2	0F49C2E5D20E0	etr139	051903.XLS	53	160	05/23/2003	051903.XLS, 052003.XLS, 052103.XLS, 052203.XLS				
3	0F49C2E5D20E0	etr95	051903.XLS	53	160	05/23/2003	051903.XLS, 052003.XLS, 052103.XLS, 052203.XLS				
4	0F49C2E5D20E0	etr144	051903.XLS	53	160	05/23/2003	051903.XLS, 052003.XLS, 052103.XLS, 052203.XLS				
5	0F49C2E5D20E0	etr88	051903.XLS	53	160	05/23/2003	051903.XLS, 052003.XLS, 052103.XLS, 052203.XLS				
6	96BA968C45DA0	55B5D9681DC42	051903.XLS	53	160	05/23/2003	051903.XLS, 052003.XLS, 052103.XLS, 052203.XLS				
7	96BA968C45DA0	EF4DB9450C852	051903.XLS	53	160	05/23/2003	051903.XLS, 052003.XLS, 052103.XLS, 052203.XLS				
8	42076056C5050	85F89568D6082	051903.XLS	53	160	05/23/2003	051903.XLS, 052003.XLS, 052103.XLS, 052203.XLS				
9	42076056C5050	17BC0B8AAE122	051903.XLS	53	160	05/23/2003	051903.XLS, 052003.XLS, 052103.XLS, 052203.XLS				
10	42076056C5050	7BE8B2B715852	051903.XLS	53	160	05/23/2003	051903.XLS, 052003.XLS, 052103.XLS, 052203.XLS				
11	42076056C5050	7CFD62784EB62	051903.XLS	53	160	05/23/2003	051903.XLS, 052003.XLS, 052103.XLS, 052203.XLS				
12	48229398C4AF0	D1F375D17ECD2	051903.XLS	53	160	05/23/2003	051903.XLS, 052003.XLS, 052103.XLS, 052203.XLS				
13	48229398C4AF0	2F63F9C575912	051903.XLS	53	160	05/23/2003	051903.XLS, 052003.XLS, 052103.XLS, 052203.XLS				
14	48229398C4AF0	6405ADF183152	051903.XLS	53	160	05/23/2003	051903.XLS, 052003.XLS, 052103.XLS, 052203.XLS				
15	42DBFDF661020	ED2A3D85D5202	051903.XLS	53	160	05/23/2003	051903.XLS, 052003.XLS, 052103.XLS, 052203.XLS				
16	42DBFDF661020	2D6333797CB02	051903.XLS	53	160	05/23/2003	051903.XLS, 052003.XLS, 052103.XLS, 052203.XLS				
17	42DBFDF661020	40171AAF07B22	051903.XLS	53	160	05/23/2003	051903.XLS, 052003.XLS, 052103.XLS, 052203.XLS				
18	42DBFDF661020	96C30B96C5E72	051903.XLS	53	160	05/23/2003	051903.XLS, 052003.XLS, 052103.XLS, 052203.XLS				
19	CBAD964887370	ac1157	051903.XLS	53	160	05/23/2003	051903.XLS, 052003.XLS, 052103.XLS, 052203.XLS				
20	64CCF42D54D50	A0C25FFEDFA12	051903.XLS	53	160	05/23/2003	051903.XLS, 052003.XLS, 052103.XLS, 052203.XLS				
21	626458C485980	CC62C0B1865C2	051903.XLS	53	160	05/23/2003	051903.XLS, 052003.XLS, 052103.XLS, 052203.XLS				
22	3A4440365B870	ac1139	051903.XLS	53	160	05/23/2003	051903.XLS, 052003.XLS, 052103.XLS, 052203.XLS				
23	3A4440365B870	ac1137	051903.XLS	53	160	05/23/2003	051903.XLS, 052003.XLS, 052103.XLS, 052203.XLS				
24	7667DF06E7520	BC396	051903.XLS	53	160	05/23/2003	051903.XLS, 052003.XLS, 052103.XLS, 052203.XLS				
25	11950A2177200	BC395	051903.XLS	53	160	05/23/2003	051903.XLS, 052003.XLS, 052103.XLS, 052203.XLS				
26	11950A2177200	fc234	051903.XLS	53	160	05/23/2003	051903.XLS, 052003.XLS, 052103.XLS, 052203.XLS				
27	C87B5A06F4580	BC394	051903.XLS	53	160	05/23/2003	051903.XLS, 052003.XLS, 052103.XLS, 052203.XLS				
28	C87B5A06F4580	BC386	051903.XLS	53	160	05/23/2003	051903.XLS, 052003.XLS, 052103.XLS, 052203.XLS				
29	C87B5A06F4580	BC391	051903.XLS	53	160	05/23/2003	051903.XLS, 052003.XLS, 052103.XLS, 052203.XLS				
30	C87B5A06F4580	BC387	051903.XLS	53	160	05/23/2003	051903.XLS, 052003.XLS, 052103.XLS, 052203.XLS				
31	C87B5A06F4580	ac1112	051903.XLS	53	160	05/23/2003	051903.XLS, 052003.XLS, 052103.XLS, 052203.XLS				

TMS location report

Manually Change locations In TMS



Yale University Art Gallery



Our Lady Of the Pack teams

Yale University

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203-432-7914