



Sony Computer Entertainment of America

A mobile workforce and many retail outlets

- ability to configure orders on the spot
- orders sent directly to server for fast delivery



Order Review		District 3NE
MegaLazer	02312-0223-0	6
Drone War	02563-0122-0	12
Drn War Fig	0213-2	10
Drn War Post	0871-1	1
Parrot Justice	0712-1	3
KneKow cards		16
Idaho Phil		1



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Order Configuration

A Palm system is used by SCEA's mobile worker to accept orders in the field.

Sony Computer Entertainment of America employs a highly mobile team of merchandisers who travel to retail outlets across the country to gather critical marketing data on SCEA's products. While visiting retail sites, the workers can collect product orders which are then sent directly back to the companies central server.

SCEA's Palm merchandizing application replaced a system based on paper forms. The Palm solution made it easy for workers to accurately record orders and, by eliminating the need for phone calls or mailings, allowed the information to be sent directly to SCEA's central server.

This SCEA system used modems for synchronization as a compromise between the volume of data (large in this case, mainly from other parts of the application) and mobility. Under different circumstances, an application that was primarily for order configuration might usefully employ a wireless solution.

palm

The Business Problem

Taking product orders in the field

- don't want order process to be cumbersome
- new orders must be transmitted quickly

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Order Configuration - the business problem

SCEA wants its mobile workers to be able to quickly and easily take orders.

Sony Computer Entertainment of America has a large force of mobile workers who travel directly to retail outlets selling SCEA's products. One task of these workers is to take product orders directly from the retailers. SCEA wants to insure that this process is straightforward and does not require extensive training for the mobile workers. Taking orders should not impose a burden on the retailers either. But the information should be sent back and processed quickly.

The mobile workers only take orders for small Point-of-Purchase items, such as cards and small figures. They do not take orders for the larger products such as games and consoles, which would require a more elaborate order configuration system.

 **The Old Workflow**

- 1 Order forms mailed from headquarters
- 2 Merchandiser records orders with pen and paper
- 3 Completed forms are mailed back to headquarters
- 4 Orders manually entered and sent to shipping

 1

 2

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Order Configuration - The Old Workflow

The original system involved paper forms and manual data entry.

Originally, orders taken by merchandisers were submitted on paper.

- 1 The central administrators send out new order forms to their mobile workforce. They need to be able to handle the occasional lost forms and changing address information.
- 2 The merchandisers in the field record orders from retailers by hand. There is no way to ensure that they fill this out while actually visiting retail outlets.
- 3 The merchandisers sends the orders back to the central administration. Even using express mail the trips through the mail add a delay of a few days. The central staff must open and record all the incoming forms. Missing or incomplete orders require contact with the merchandiser and retailer - adding more delays to the whole process.

- 4 The data is manually entered into the central database. Difficulties reading handwriting will lead to errors and more delays. Even at best the whole process takes time and requires the hiring of data entry people.

 **The New Workflow**

- 1 Merchandiser records orders in the field**
- 2 Synchronization sends orders directly to headquarters**



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Order Configuration - the new workflow

The Palm solution is easier, more accurate and faster.

SCEA converted their mobile workforce to a Palm solution, based around a custom application on a Palm device and server synchronization.

- 1 Workers in the field use their Palm applications to record order information from the retailers that they visit. The application stores details of available products greatly reducing some ordering mistakes.
- 2 The workers attach a Palm modem to their PDAs and synchronize directly into the central server. The products orders from each retail location can then be retrieved and the order processed. By sending the data directly to the server there is no need for manual data entry, making the process faster and eliminated a source for mistakes.



The Business Benefits

Taking product orders in the field

- order process is not intrusive
- order information is timely and accurate



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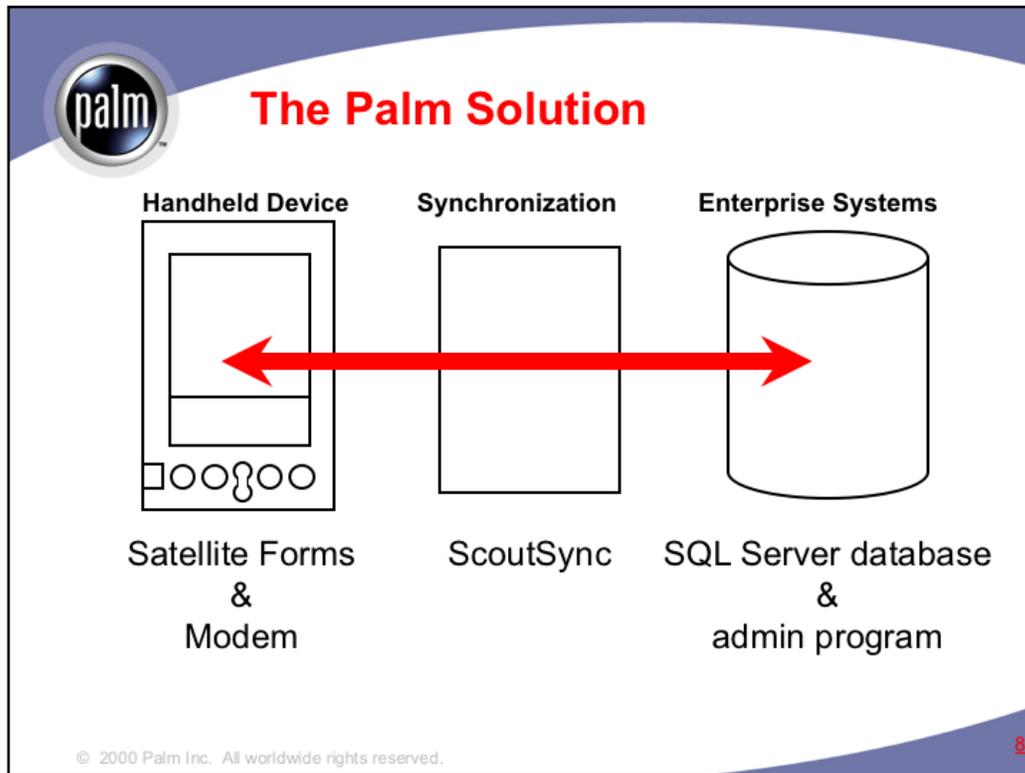
Order Configuration - the business benefits

The Palm solution is easy to use, quickly sending the data to where its needed.

The SCEA Palm system allows a highly mobile workforce to gather order information quickly and easily while they visit retail locations. The orders are sent directly to a central server where they can be quickly processed.

Benefits include:

- ease of use, the Palm application contains a database of all available products, making it easy to add selections with a few taps of a stylus. The system does not require extensive training for the workers
- timely, the information is sent back to the central sever during each synchronization, thus eliminating any delays due to travel through the mail or by taking an order over the phone
- accuracy, orders do not have any ambiguity due to poor handwriting, and there is no need for data entry specialists to manually enter the information into the central server



The Palm Solution

A complete enterprise Palm solution is more than just the handheld

The power of a successful Palm solution for the enterprise lies in the tight integration of the handheld devices with the corporate infrastructure. For the SCEA Merchandizing the deployed system consists of:

1 handheld device

- a Symbol SPT-1500 or SPT-1700 barcode enabled Palm device
- a Palm modem to connect the handheld with the server
- a Palm application written in the Satellite Forms scripting language

2 synchronization

- ScoutSync server synchronization software

3 enterprise systems

- a SQL Server database
- a custom Administration program written in Visual Basic



Handheld Device - the hardware

A Symbol device - a Palm organizer with a barcode scanner was chosen

The SCEA Merchandising system selected the Palm platform over its competitors primarily on the strength of its battery life. Windows CE devices of comparable size do not have the power to remain active for the extended periods of time needed by the merchandisers. The ease of use was also an important consideration and the custom application developed for this system was designed to be easy to operate.

A Symbol unit was selected because of the barcode scanner, which is used by other modules in this application.

The diagram illustrates a handheld device (Palm) connected to a corporate server. On the left, a person is holding a Palm device. In the center, three small icons represent the handheld devices. On the right, a server rack is shown. Red arrows point from each handheld device icon to the server rack. The text 'standard phone lines' is written above the arrows, indicating the connection method. The Palm logo is in the top left corner, and the title 'Handheld Device' is in red text at the top center. Below the diagram, there is a copyright notice: '© 2000 Palm Inc. All worldwide rights reserved.' and a page number '10' in the bottom right corner.

Handheld Device - the hardware

A modem is used to connect the Palm device to the server

The SCEA Merchandising system uses a Palm modem to make a direct connection to the central server. The use of a modem gives the merchandisers a great deal of freedom in choosing where to synchronize from without tying them down to a single PC or laptop proxy - the merchandisers simply need to locate a standard phone jack.

The connection is made using the Scout client on the Palm device, which makes a RAS connection into a server running Windows NT. The merchandisers supply their standard passwords in order for the synchronization to commence.

A wireless solution would not be a good option for this project because of the large amount of data being transferred during each synchronization. Wireless is best for

small data sets.

Handheld Application

Custom merchandizing application
 – full integration with barcode scanner

Order Selection District 3NE
 Toy Galaxy #025
 Category: ▼ Action
 Subcat: ▼ Console 3000
 Item: ▼ MegaLazer
 02312-0223-0
 Quan: 6 Add
 Reset OK Order

filtering pick-lists

review orders for this retail outlet

Order Review District 3NE

MegaLazer	02312-0223-0	6
Drone War	02563-0122-0	12
Drn War Fig	02565-0213-2	10
Drn War Post	02565-0871-1	1
Parrot Justice	07818-9112-1	3
KneKow cards	07819-9153-0	16
Idaho Phil	07811-0211-2	1

Return Remove

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Handheld Device - the application

Order information is collected with pick-lists on easy to use forms.

The custom Palm application includes a simple form for selecting products to be ordered. A series of three pick-lists filter through the built-in database of product information. By selecting the category in the first pick-list, only relevant sub-categories are available in the second. Finally, the item pick-list contains only products matching the selected category and subcategory, greatly reducing the number of products to select from. With only a small amount of practice a worker can quickly generate an order. A second screen contains a review of selected items for each retail location, where mistakes can be corrected or removed.



Handheld Application

Palm program written with Satellite Forms

- Rapid Application Development for the Palm OS®
- a Visual Basic like development environment

Timesheet

Edit Edit

List

Total: Edit

OK

Timesheet

Rep: H. J. Newberg

Store Call	8:52	9:14
Store Call	10:05	10:54
Store Call	2:14	3:45
POP Ordering	3:47	3:56
Special Event	5:24	7:12
Total		6:41

OK

Satellite Forms™

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Handheld Device - the development environment

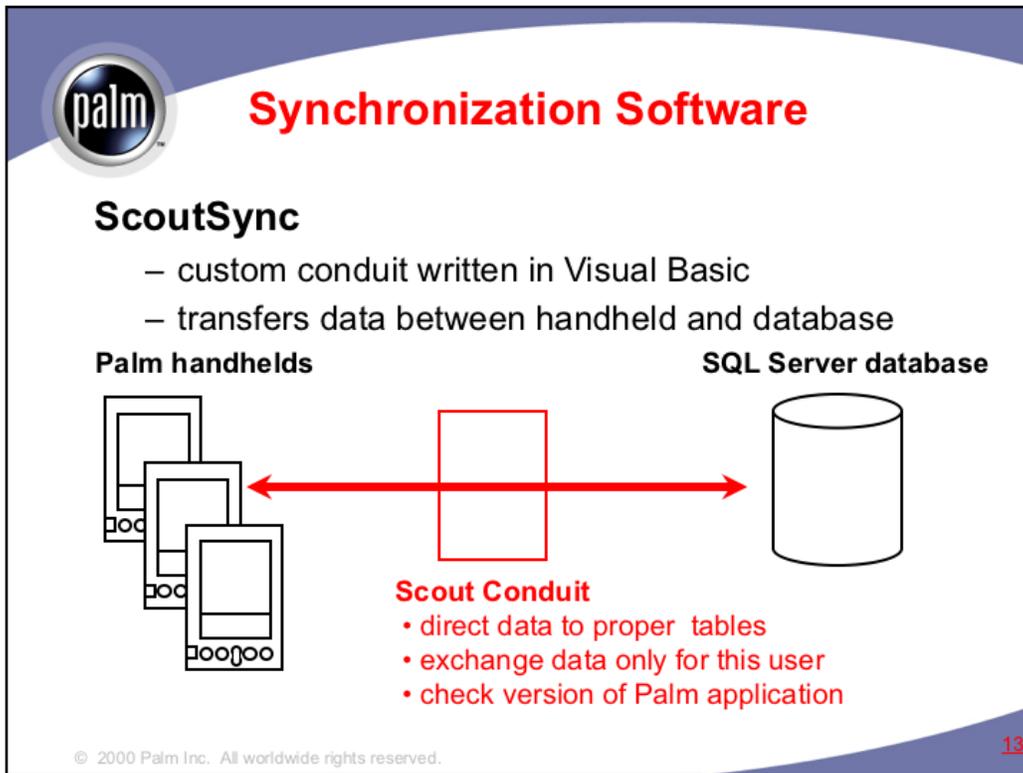
The Satellite Forms scripting language was used to develop the Palm program

The Palm application for the SCEA Merchandising system was written using the Satellite Forms development environment, from Puma Technologies. Satellite Forms is a scripting language with an easy to use tool for quickly creating the user interface for a Palm form.

Satellite Forms was chosen for the SCEA Merchandizing system because of its Visual Basic-like ease of use, and ability to make rapid changes to the user interface. Once the system is completed by an outside contractor SCEA's own IT staff will be able to make additional changes and upgrades without having to learn the complete Palm OS® API.

Satellite Forms also allows for small native programming application to be integrated into the main program to supply additional capabilities. For the SCEA system extensions were used to read the Palm's internal device number as an added security option as well as to use the barcode scanner.

Applications written in scripting languages like Satellite Forms are slower than those developed from a native C/C++ compiler like CodeWarrior. The trade off is that more time and specialized expertise is needed for the latter.



Synchronization Software

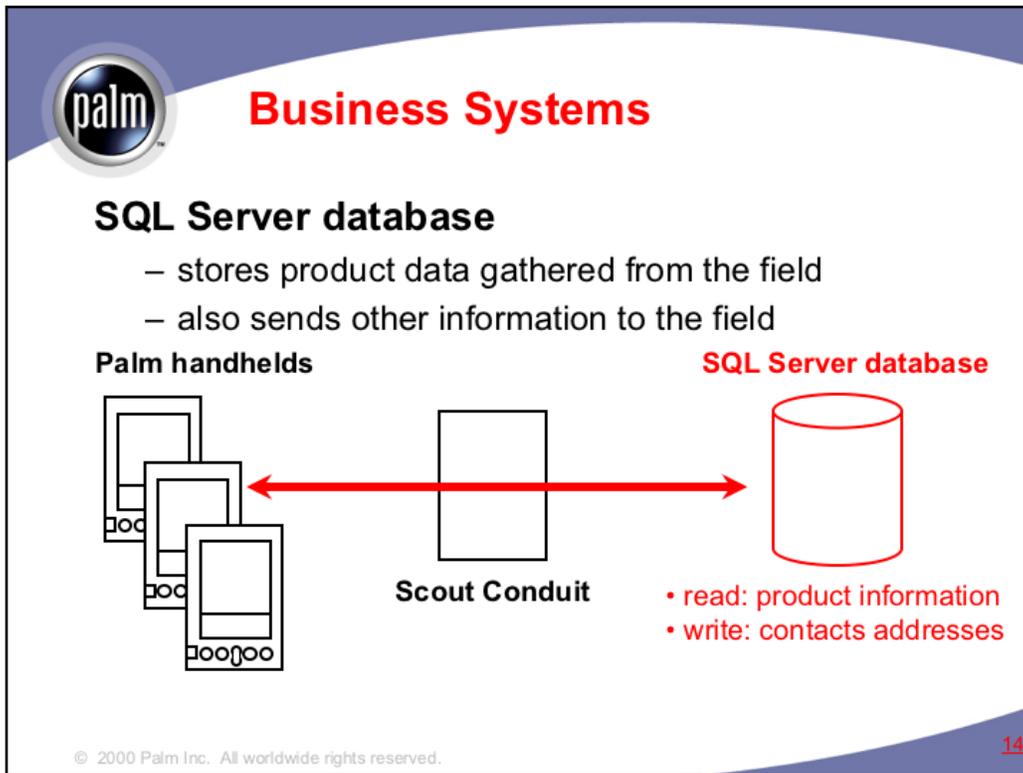
ScoutSync is used as the server synchronization solution.

There are a wide variety of server synchronization products and approaches. For the SCEA Merchandising system Scout was selected in order to allow for the greatest flexibility.

A Scout conduit was written in Visual Basic to control the details of the data exchange between the Palm and the back-end SQL Server database during a synchronization. The primary task of the conduit is to direct data from specific database tables on the Palm device to specific tables within the SQL Server database. The conduit determines which user is synchronizing and supplies them with the appropriate information. For example, merchandisers in New York will only receive information on retail outlets in the North East.

The conduit is also vital to maintaining version control. Newer versions of the Palm application can have slightly different data requirements (perhaps a new field, such as a web address, is added to a store contact). The conduit must be able to work with multiple versions until all users have upgraded.

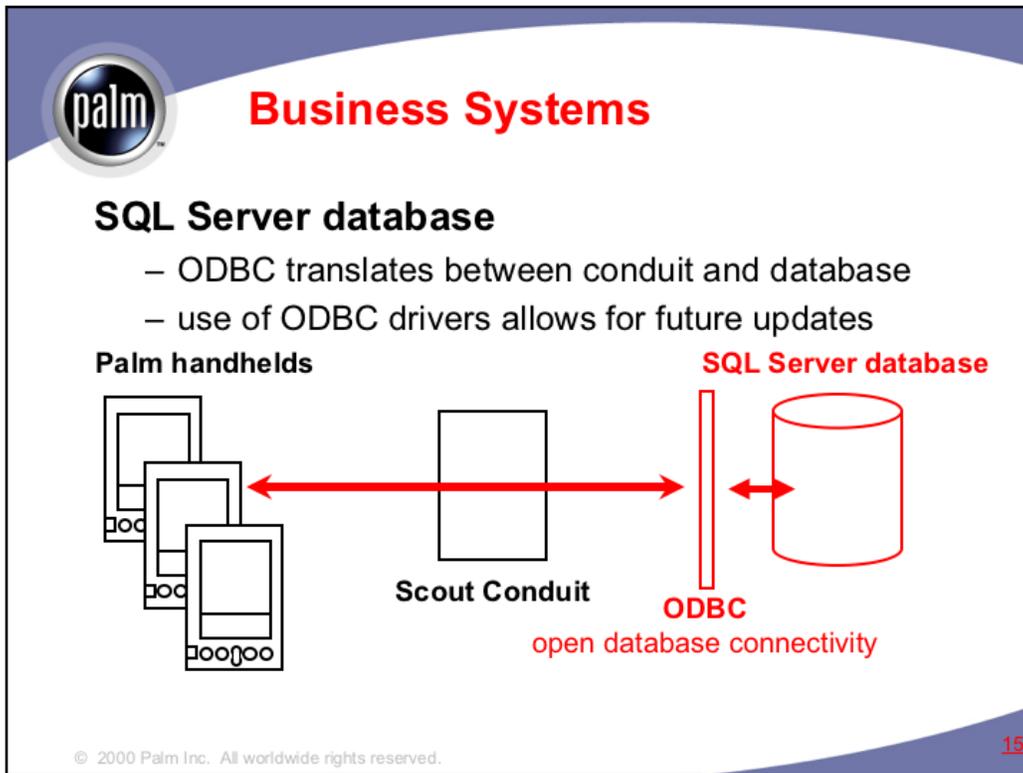
Scout is now used as the core of Palm Computing's new server synchronization product HotSync[®] Server.



Business Systems - the central database

The system uses a SQL Server database on the enterprise server

The information collected by the merchandisers is ultimately synchronized into a single SQL Server database running on the main server. The database is used to store information gathered from the field, such as prices and quantities of items in different stores. Reporting done using this database then yields timely and accurate information for the companies marketing specialists. The main database also stores information that is sent back to the field, such as the addresses of retail stores, allowing the central IT people to constantly update and add to critical data needed in the field.



Business Systems - database systems

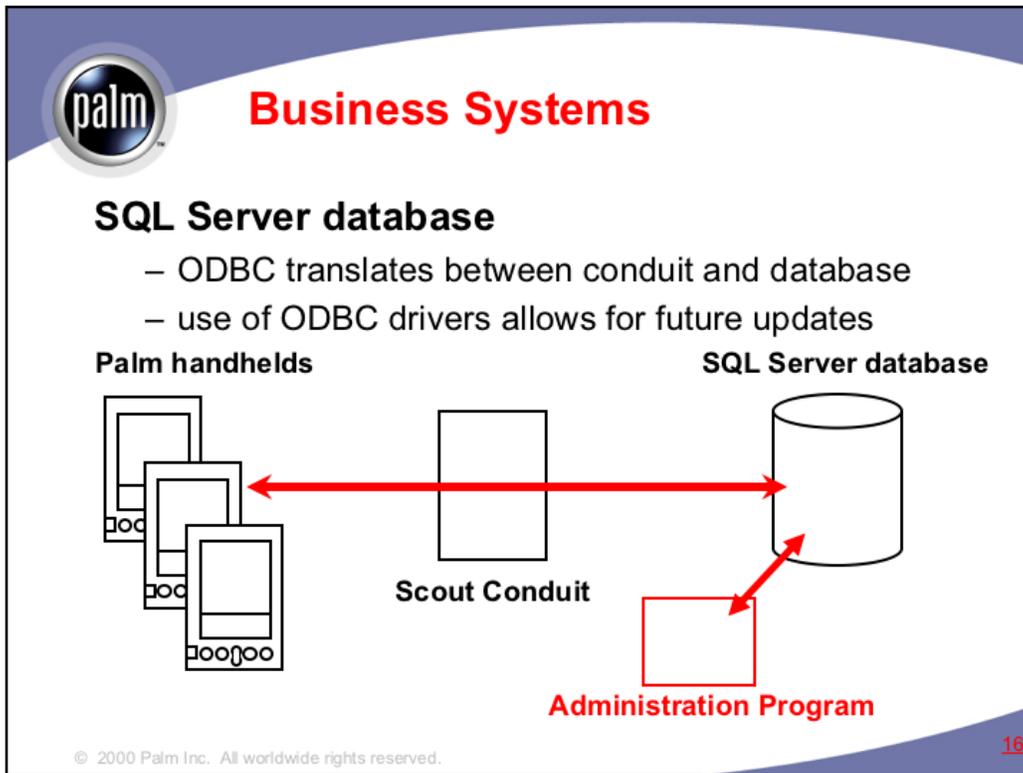
The conduit uses ODBC, allowing for almost any database to be used

The information from the fleet of Palm devices is sent back to a single database. By using a special layer of software commands the Scout conduit is able to “speak” a database language that is understood by all the major vendors. This retains the flexibility to change or upgrade the back-end systems without having to rewrite the conduit or make other drastic changes.

SCEA uses a SQL Server 6.5 database, although they wanted to retain the capability to change to a different solution in the future. The Scout conduit uses an ODBC (Open Database Connectivity) driver on the server to actually send and receive information from the database. All major database vendors have products that will work with the ODBC standards. Therefore, the IT staff will be able to change the back-end database to something from Oracle, Sybase, IBM, etc. with minimal effort.

Be aware that it is possible that minor changes will be needed in case a new

database does not operate exactly the way the current ODBC driver expects.



Business Systems - administration program

A custom administration program is used to modify synchronization details

The central database also stores information about the retail outlets and the merchandisers themselves. This data is used to filter the data that is synchronized by only sending merchandisers records pertaining to retail outlets in their territories. The details of this sort of filtering is controlled by a custom designed Administration program running on the server.

The Administration program used by this system allows an IT person to establish different user groups and to move users between groups. The Administration program does this by making changes in special tables within the database. During a synchronization the conduit reads these table to determine which data a particular user gets.

There are other choices for device management that might be applicable in other situations. All the major synchronization products now ship with device management utilities of one sort or another.



Thank you!

Any questions?



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