



# Getting Your Ducks in a Row:

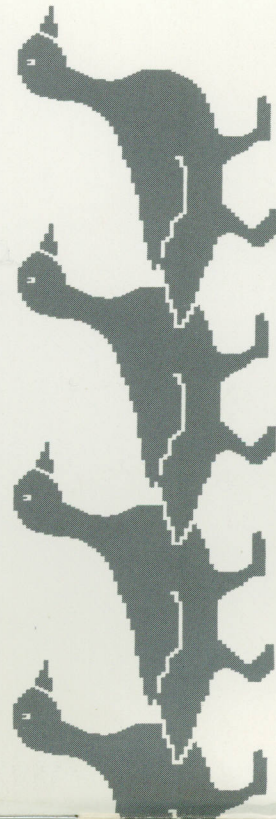
A Guide to Using Your  
IBM Assistant Series Products

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# Getting Your Ducks in a Row:

A Guide to Using Your  
IBM Assistant Series Products



## First Edition (November 1985)

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# IBM Assistant Series User

Have you ever wished for just a few more hours in the work day or an extra pair of hands to help you meet an approaching deadline? The Assistant Series provides the help you need. Now you can get your ducks in a row - and keep them there!

Separately, each Assistant Series product is an effective tool designed to help you make the best use of your time and effort. *Getting Your Ducks in a Row* shows you how you can combine the Assistant Series products to perform an even broader range of tasks. You can even use more than one Assistant product at a time in the TopView operating environment.

And now the Assistant Series has three new members: *IBM Drawing Assistant*, *IBM Document Retrieval Assistant* and *IBM Mainframe Communication Assistant*. These products provide you with new, creative ways to get the job done, quickly and efficiently.

*Getting Your Ducks in a Row* tells you about each member of the Assistant Series and highlights the many ways you can use the products together. It shows you how the Assistant Series can be used in the growing communications environment to exchange information with host computer systems, information services and other IBM Personal Computers. This book also shows you which IBM Personal Computer equipment and IBM Disk Operating Systems you can use with the Assistant Series.

*Getting Your Ducks in a Row* explores the many possibilities you have at your fingertips to take full advantage of your IBM Personal Computer and the usefulness the Assistant Series offers. Visit your nearest authorized IBM Personal Computer Dealer for more information about the Assistant Series.

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## Chapter 1. Meet the IBM Assistant Series

On the following pages you will be introduced to each member of the IBM Assistant Series. You will learn how these software products work together to help you be more productive on the job and at home. You will find an illustration in each product discussion that highlights the ways your information can be exchanged between that product and the rest of the family.

Let's see how the Assistant Series can help the local Runners Club Board of Directors organize its ten mile charity fund raising race.

First of all, the board members need to look at the financial results of last year's fund raiser as a starting point for this year's race. They used **IBM Planning Assistant** to track numerical information such as total monetary contributions, broken into corporate sponsors and individual contributor categories. They also organized registration fee totals into age groups and tracked itemized transportation and lodging costs for featured out-of-town runners.

With this information the board uses Planning Assistant to project financial plans and contribution goals for this year's race budget.

The club president uses this Planning Assistant data to create an **IBM Graphing Assistant** bar chart to use in his presentation to the club membership. With these visual aids he can more effectively show what financial objectives must be met to stay within the race budget and reach the club charity contribution goal.

With a budget in place and a presentation prepared, it is time to organize the Runners Club membership into working committees at the Charity Race Kickoff meeting.

Here's how the Runners Club uses Writing Assistant with other Assistant Series members.

**Filing Assistant:** The race secretary uses Filing Assistant to create mailing lists for each committee.

**Reporting Assistant:** After the race, the Corporate Sponsors Committee chairperson includes a Reporting Assistant tabular report in his committee summary. His report, *Contributions from Corporations*, lists each corporation and the type and amount of contributions it made.

**Graphing Assistant:** The secretary uses Graphing Assistant to create a bar chart of the total contributions in monetary, prize and supply categories. He compares the information with last year's totals in a letter to the club membership.

**Planning Assistant:** A Planning Assistant spreadsheet, showing total race expenses, is included in a final race report to all club members.

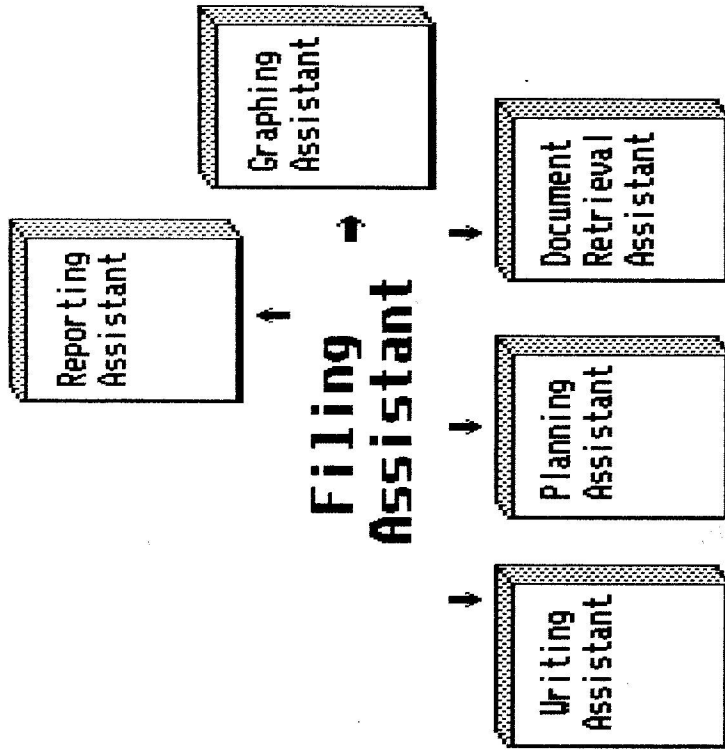
**Drawing Assistant:** The Publicity Committee includes a map of the race route, created with Drawing Assistant, in the brochures announcing this year's event to the community.

**Document Retrieval Assistant:** The Media Relations Committee uses Document Retrieval Assistant to retrieve biographies on featured runners to include in a Charity Race fact sheet for the press.

## IBM Filing Assistant

Filing Assistant is a file manager program you can use to design and change your own file forms. You can search for and update records by using only a few keystrokes. You can print selected records, selected items from records, or an entire file.

The following illustration shows that Filing Assistant files can be used by Reporting Assistant, Graphing Assistant, Document Retrieval Assistant, Planning Assistant and Writing Assistant.



Here's how the Runners Club uses Filing Assistant with other members of the Assistant Series.

**Writing Assistant:** The corporate sponsors chairperson uses Filing Assistant search capabilities to locate the records of all club members who work for large corporations to create a mailing list for a contribution campaign.

**Reporting Assistant:** The treasurer uses Filing Assistant files of the expenses of each committee member to incorporate into Reporting Assistant reports on committee budgets.

**Graphing Assistant:** The registration chairperson uses Filing Assistant to search last year's entry forms by age groups. Then, she incorporates the totals into a Graphing Assistant pie chart to give her committee direction in its registration campaign.

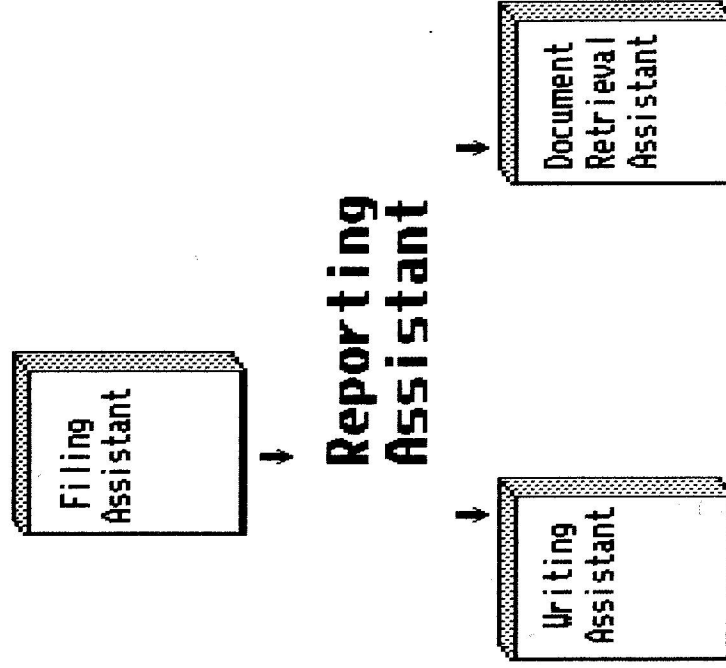
**Planning Assistant:** The Finance Committee uses Filing Assistant files of the committees' weekly expense reports in a Planning Assistant spreadsheet to ensure each committee stays within its budget.

**Document Retrieval Assistant:** The registration chairperson uses Document Retrieval Assistant to retrieve all registration forms that contain an out-of-state address to use in a special mailing list.

## IBM Reporting Assistant

You can use Reporting Assistant to design tabular reports from Filing Assistant files. You can select the items to be printed and the order in which you want them to appear. Reports can include column calculations, derived columns, ascending and descending sorts, and totals only. With Reporting Assistant, you can store up to eight commonly used report formats.

The following illustration shows that Reporting Assistant can receive data from Filing Assistant and that Reporting Assistant reports can be included in Writing Assistant documents or located by Document Retrieval Assistant.



Here's how the Runners Club uses Reporting Assistant with other members of the Assistant Series.

**Filing Assistant:** Each committee tracks its long distance phone calls on Filing Assistant forms. The club treasurer keeps the data updated in a tabular report, *Race Long Distance*.

Race Long Distance

Date	Time	Number	Duration	Caller
09/30/85	02:30 pm	816-555-5342	1 min.	George Smith
	03:15 pm	816-555-5634	2 min.	George Smith
	11:45 am	816-555-8864	4.5 min.	Ed Johnson
10/25/85	03:45 pm	305-555-7756	1 min.	Ed Johnson
	09:52 am	305-555-6543	2 min.	George Smith
	10:02 am	305-555-9843	1.5 min.	George Smith
	11:05 am	305-555-2332	3.5 min.	Ann Clark
11/13/85	09:00 am	513-555-7655	1 min.	Susan Jones
	09:10 am	513-555-9578	2 min.	Susan Jones
	09:20 am	513-555-3332	3 min.	Susan Jones
11/15/85	02:00 pm	305-555-8746	1 min.	Ann Clark
	03:30 pm	305-555-7649	2 min.	Ann Clark
	03:40 pm	305-555-2232	5 min.	Ann Clark
	04:00 pm	305-555-2323	12 min.	George Smith
11/26/85	10:30 am	232-555-4545	2 min.	Susan Jones
	11:45 am	232-555-7654	3.5 min.	Susan Jones

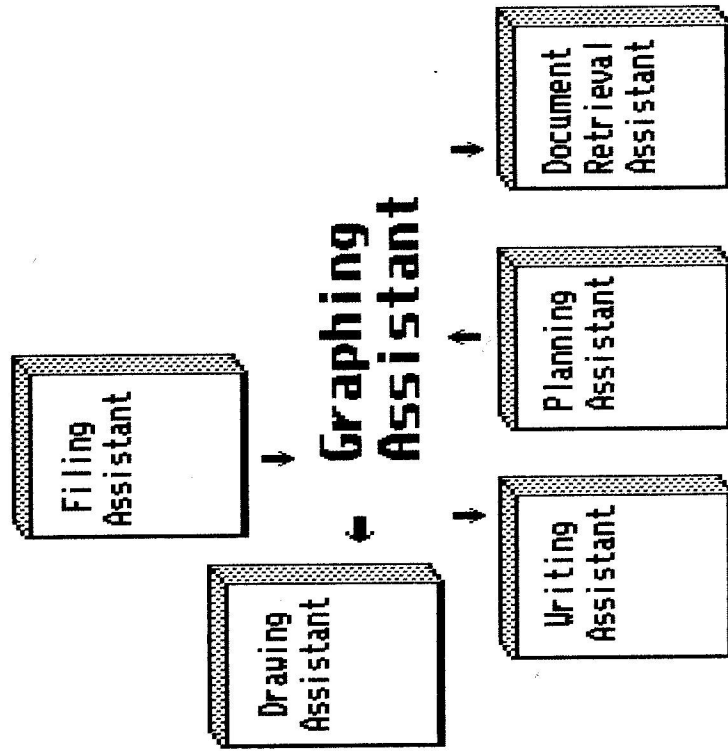
**Writing Assistant:** The Finance Committee sends updated budget reports in a weekly letter, created with Writing Assistant, to the club's Board of Directors.

**Document Retrieval Assistant:** The Medical Committee uses Document Retrieval Assistant to retrieve tabular reports listing supplies from last year's race. With this information they can determine the quantities needed at the aid stations along the race route.

## IBM Graphing Assistant

Graphing Assistant is a graphics program that presents data in line, bar and pie charts. Up to four line and bar graphs can be grouped in a single chart. Your charts print exactly as they appear on the monitor. You can print color charts or charts with black-and-white shading. You can use a slow pen speed for plotting on transparencies.

The following illustration shows that Graphing Assistant can send files to Document Retrieval Assistant, Writing Assistant and Drawing Assistant, and receive files from Filing Assistant and Planning Assistant.



Here's how the Runners Club uses Graphing Assistant with the other members of the Assistant Series.

**Writing Assistant:** The Publicity Committee uses line charts to depict the growing amount of dollars the Runners Club has contributed to charity over the last ten years. The charts are included in promotional brochures, created with Writing Assistant, and distributed throughout the community.

**Filing Assistant:** The Media Relations Committee takes demographic information from the Filing Assistant entry forms and creates a pie chart to supply target audience information for radio, television and newspaper advertising.

**Planning Assistant:** Planning Assistant spreadsheet data of each committee's financial and man-hour requirements are put in bar chart form to be included in the final race report.

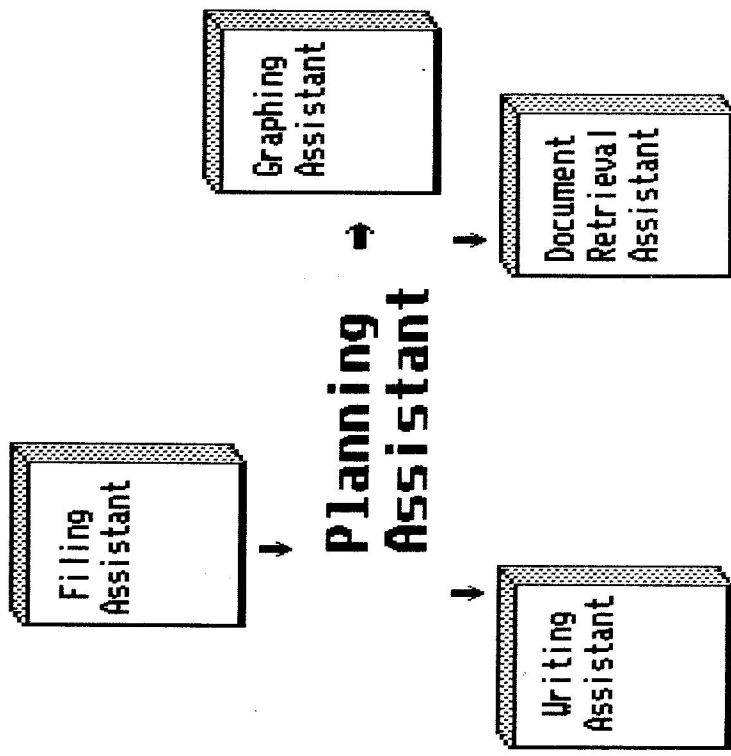
**Drawing Assistant:** Drawing Assistant adds a variety of patterns to Graphing Assistant bar charts allowing the club president to show more specific information in his presentation to the National Race Committee.

**Document Retrieval Assistant:** The Board of Directors uses Document Retrieval Assistant to search on the "man-hour" graph legend. Then, the directors browse all related Graphing Assistant charts to compare data with this year's man-hour needs.

## IBM Planning Assistant

Planning Assistant is a spreadsheet program for numerical planning. With Planning Assistant you can budget, predict, project and forecast. The program features customized formulas with enhanced functions for more complex calculations, a quick entry function for easy replication of data, and a target value function that helps in goal seeking and in reverse calculations.

The following illustration shows that Planning Assistant can send information to Graphing Assistant, Document Retrieval Assistant and Writing Assistant, and receive information from Filing Assistant.





Here's how the Runners Club uses Planning Assistant with the other Assistant Series members.

**Writing Assistant:** The treasurer sends this year's final budget spreadsheet to other runners clubs in a Writing Assistant letter that explains how they can begin financing their own races.

**Filing Assistant:** Entrants can order a souvenir race shirt on their Filing Assistant race registration form. The shirt sizes and colors are tracked on a spreadsheet and ordered from the supplier.

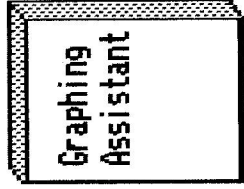
**Graphing Assistant:** The Finance Committee graphs final race costs from spreadsheet data to compare with last year's costs. The chairperson uses these visual aids, created with Graphing Assistant, in his presentation at the race follow-up meeting.

**Document Retrieval Assistant:** A race chairperson uses Document Retrieval Assistant to retrieve all spreadsheets with "Final" included in the headings. After the race, he compares last year's statistics with this year's statistics.

## IBM Drawing Assistant

Drawing Assistant is a graphics product you can use to create and edit attractive drawings for business, school or personal use. With the aid of a drawing device, such as a mouse, function selection and drawing are simplified. You can select or create patterns to fill your drawing shapes and choose different brush styles, colors, and different text styles and sizes.

The following illustration shows that Drawing Assistant can send drawings to Writing Assistant and receive charts from Graphing Assistant.



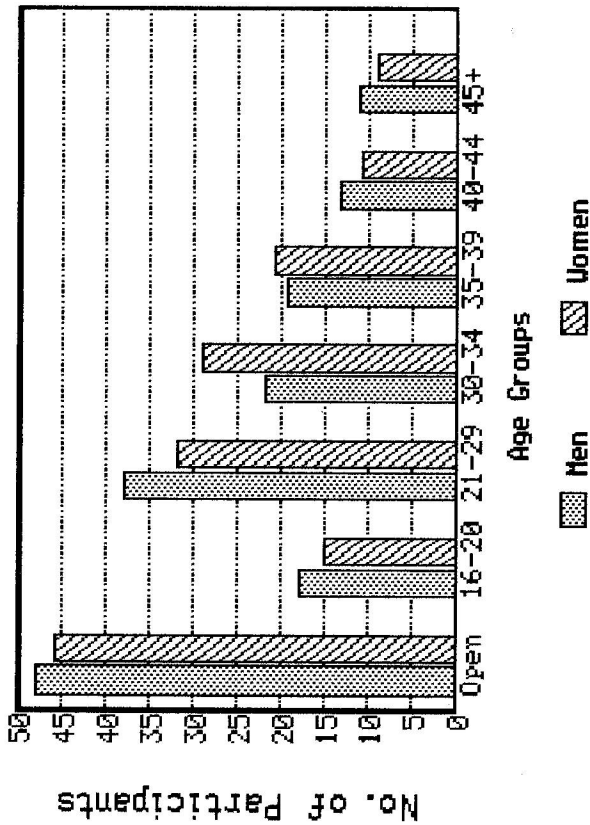
**Drawing Assistant**



Here's how the Runners Club uses Drawing Assistant with the other members of the Assistant Series.

**Graphing Assistant:** In a presentation to the Chamber of Commerce, the president uses Drawing Assistant to enhance the legends of his Graphing Assistant charts.

## Age Group Participation

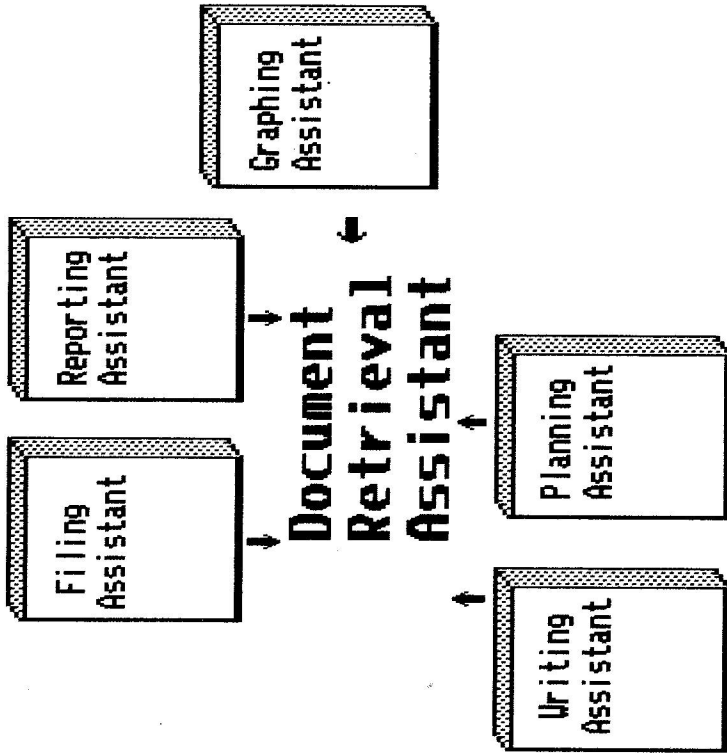


**Writing Assistant:** The president uses the enhanced Graphing Assistant charts to emphasize specific information in the follow-up Writing Assistant letter he sends to the local Chamber of Commerce.

## IBM Document Retrieval Assistant

Document Retrieval Assistant is a program you can use to easily and quickly locate documents such as memos, reports and charts on your fixed disk or high capacity diskette. After you make search requests with simple words, the program creates a list of the documents that contain those words or their synonyms. Then you can view, print or store the document you were looking for. The program automatically creates a summary for any document you choose. You can summarize up to 4000 documents in a single summary file.

The following illustration shows that Document Retrieval Assistant can summarize files from Filing Assistant, Reporting Assistant, Graphing Assistant, Planning Assistant and Writing Assistant.



Document Retrieval Assistant also works with files from other programs using ASCII characters such as:

- DisplayWrite 1
- Multiplan 1.0
- VisiCalc 1.0
- Personal Editor 1.0
- Professional Editor 1.0
- Peachtext 1.0
- Word Proof 1.0

Document Retrieval Assistant also works with files from other programs using non-ASCII characters such as:

- DisplayWrite 2
- DisplayWrite 3
- Easywriter 1.10, 1.15
- Wordstar 3.3
- PCWriter 1.0

Here's how the Runners Club uses Document Retrieval Assistant with the rest of the Assistant Series.

**Writing Assistant:** The race secretary uses Document Retrieval Assistant to browse a Writing Assistant letter in last year's data base for background information he needs for a report to the National Runners Club officers.

**Reporting Assistant:** The treasurer uses Document Retrieval Assistant to retrieve Reporting Assistant reports with a "Total Costs" column name to include in the final expense report.

**Graphing Assistant:** The Publicity Committee stores Graphing Assistant charts to retrieve for presentations given throughout the year to other runners clubs.

**Planning Assistant:** The club president uses Document Retrieval Assistant to locate Planning Assistant spreadsheets with a specific month column name.

## IBM Mainframe Communication Assistant

Mainframe Communication Assistant is a program you can use to establish direct or asynchronous communication links between your IBM Personal Computer and a host computer. Once you have made contact, you can transfer files between your IBM Personal Computer and an IBM System 370 host running the IBM VM operating system in the CMS environment or the IBM MVS operating system in the TSO environment. You can send messages and data files from one IBM Personal Computer to another Personal Computer, running Mainframe Communication Assistant software. You can also access commercial information services or bulletin boards.

You can learn more about using Mainframe Communication Assistant with other members of the Assistant Series in the section "Entering the Communications World," later in this book.

## IBM Assistant Solutions

Assistant Solutions are packages of predesigned file forms and report templates for common record-keeping tasks. The forms and reports provided can be easily modified, if necessary, to provide just what you need. The Assistant Solutions are offered as a convenience option and are not required for use with the Assistant Series.

Assistant Home Solutions are useful for household applications. Included are:

- Checks - to manage and balance checkbooks
- Home Budget - to plan and manage home expenses
- Home Inventory - to keep track of household valuables
- Home Mail - to maintain names, addresses and phone numbers
- Disk Library - to keep track of computer equipment and software
- Coupons - to organize and track refund coupons
- Service - to organize and track household service people and companies

Assistant Executive Solutions are intended for small businesses and offices. Included are:

- Traveler - to organize information on transportation
- Daily - to organize daily appointment schedules
- Tickler - to remind you of important meetings and events
- Mail List - to maintain names, addresses and phone numbers
- Stocks - to track stock portfolios
- Bizcard - to compose the information on business cards
- Checks - to manage and balance checkbooks

**Assistant Accounting Solutions** are for common accounting applications. Included are:

- Ledger - to track accounts and journal entries
- Employee - to maintain information about employees
- Inventory - to help manage inventory
- Invoices - to inform you of customer purchases, invoice history, receivables, cash receipts and sales tax
- Payroll - to do payroll and W-2 calculations and payroll stubs

**Planning Assistant Solutions** are ready-made financial application spreadsheets designed for home and business needs.

**Planning Assistant Home Solutions** give you a variety of solutions for home use. Included are:

- Home Budget - to create your yearly budget in detail
- Home Cash Flow - to calculate home cash flow and disposable income
- Home Property Cash Flow - to test and project cash flow for a typical income property
- Loan Amortization - to calculate the payment required to repay a loan
- Loan Calculations - to calculate the monthly payment for a mortgage or installment loan
- Net Worth - to record all your assets and liabilities
- Real Property Valuation - to calculate the indicated value of real estate
- Stock Portfolio - to provide a typical stock record file with tracking and analyzing capabilities

**Planning Assistant Business Solutions** allow you to perform a variety of business calculations. Included are:

- ACRS (Accelerated Cost Recovery System) Depreciation - to calculate a depreciation schedule for depreciable assets that qualify for ACRS
- Straight Line and Double Declining Balance Depreciation - to calculate different amounts of depreciation over varying time frames
- Sum of the Years - to calculate different depreciation amounts for different years
- Travel Expense Account - to calculate expense account reimbursement
- Revenue Forecasting - to use incremental percentages as growth rates to project business revenues
- Monthly Overhead Analysis - to evaluate overhead expenses and determine problem areas
- Yearly Overhead Analysis - to evaluate overhead expenses from year to year to determine problem areas
- Financial Statement Worksheet - to assist in the preparation of a balance sheet and income statement
- Time Accounting - to show the progress of a project at various stages of completion

## Make Them Work For You

You have met each member of the Assistant Series; now put them to work! The publication accompanying each product describes how to use the product and combine its files with other Assistant Series files. Our family of software products is always growing. Some of the information about combining Assistant Series files is not found in the publication you receive with each product. The following section provides this information for you.



The following information describes how you can include Planning Assistant information in a Writing Assistant document and how to include Planning Assistant information in a Graphing Assistant chart.

**To include Planning Assistant information in a Writing Assistant document:**

1. While in Planning Assistant, save your spreadsheet as a disk file.

You do this by selecting the **Print** option on the Main Menu and specifying a filename at the **Print to** entry.

2. Start Writing Assistant. **Get** the document into which you want to receive the Planning Assistant information you saved as a disk file.
3. In the **Working Copy** of your document, move the cursor to where you want the Planning Assistant information to appear.
4. Press, and hold down, the Shift key while you press the F5 key.

or

You can use the Join command. Simply type,

**\*join spreadsheet filename\***

or

**\*j spreadsheet filename\***

For example, **\*join Transportation Costs\***. Now, when you print your document, the Planning Assistant information will appear as specified.

**To include Planning Assistant information in a Graphing Assistant chart:**

1. While in Planning Assistant, save your spreadsheet as a Multiplan **SYLK** file.
2. While still in Planning Assistant, **Get** the file you just saved in the Multiplan **SYLK** format.

When you add this information to Graphing Assistant, you will have to specify which items are to be read as X and Y data for your chart. Look at the Planning Assistant information in this special format and note the items you want to use as X and Y data in your chart.

**Note:** Planning Assistant headings are counted as rows and columns in the SYLK file. All three horizontal headings available in Planning Assistant are generated in the SYLK file, whether they are used in the Planning Assistant spreadsheet or not. For example, Planning Assistant Row 1, Column 1 of data is counted as Row 4, Column 2 in the SYLK file.

3. Start Graphing Assistant and **Get** the Planning Assistant file containing the information you want to see in Graphing Assistant. Remember, you saved it in a special Multiplan SYLK format, so you must specify **Get Multiplan file**, on the Get/Save/Remove Menu, and enter the correct filename.
4. Fill in the **Graph spec** form with the SYLK cell reference names for the X and Y data you noted in your Planning Assistant file. For example, **r3c2:5** is the cell reference for the information in Row 3, Column 2 through 5 of your spreadsheet. Choose the X data format.

**Note:** You can also use the VisiCalc DIF file format when including Planning Assistant information in a Graphing Assistant chart.

## Chapter 2. Getting Started

The first step toward more productive, organized work time is using the appropriate computer equipment and IBM Disk Operating System (DOS) level with your IBM Assistant Series programs.

This chapter lists the memory requirements and DOS levels you need to start using each Assistant Series program with the entire family of IBM Personal Computer products. All Assistant Series programs require at least one double-sided diskette drive, however certain functions may be limited when using a single diskette drive system. Each Assistant Series program works in the TopView operating environment.

You will also find a list of the displays, printers and plotters you can use with the Assistant Series.

In addition, this chapter highlights the equipment you need to use Mainframe Communication Assistant for asynchronous or direct connection communications.

# Equipment, Memory and DOS

## Drawing Assistant

One of These	Minimum Memory	DOS Level
IBM Personal Computer	256KB	2.0 - above
IBM Personal Computer XT	256KB	2.0 - above
IBM Personal Computer AT	256KB	3.0 - above
IBM <i>Portable</i> PC	256KB	2.1 - above
IBM PCjr	256KB	2.1 - above

## Document Retrieval Assistant

One of These	Minimum Memory	DOS Level
IBM Personal Computer	192KB	2.0 - above
IBM Personal Computer XT	192KB	2.0 - above
IBM Personal Computer AT	192KB	3.0 - above
IBM <i>Portable</i> PC	192KB	2.1 - above
IBM PCjr	192KB	2.1 - above

## Mainframe Communication Assistant

One of These	Minimum Memory	DOS Level
IBM Personal Computer	128KB	2.0 - above
IBM Personal Computer XT	128KB	2.0 - above
IBM Personal Computer AT	128KB	3.0 - above
IBM <i>Portable</i> PC	128KB	2.1 - above
IBM PCjr	128KB	2.1 - above

## Writing Assistant, Filing Assistant, Reporting Assistant and Graphing Assistant

One of These	Minimum Memory	DOS Level
IBM Personal Computer	128KB	1.1 - above
IBM Personal Computer XT™	128KB	2.0 - above
IBM Personal Computer AT®	128KB	3.0 - above
IBM <i>Portable</i> PC	128KB	2.1 - above
IBM PCjr™*	128KB	2.1 only

\* If your IBM PCjr has more than 128KB of memory, you may use DOS 2.1 or above.

## Planning Assistant

One of These	Minimum Memory	DOS Level
IBM Personal Computer*	128KB	2.0 or 2.1
IBM Personal Computer XT	128KB	2.0 - above
IBM Personal Computer AT	128KB	3.0 - above
IBM <i>Portable</i> PC	128KB	2.1 - above
IBM PCjr**	128KB	2.1 only

\* If your IBM Personal Computer has more than 128KB of memory, you need DOS 2.0 or above.

\*\* If your IBM PCjr has more than 128KB of memory, you may use DOS 2.1 or above.

With Planning Assistant, additional memory is required as your spreadsheets increase in size and complexity.

# Equipment You Can Use with the Assistant Series

Graphing Assistant does not work with the following printers: IBM PC Compact Printer, IBM Wheelwriter Printer, IBM Quietwriter Printer, IBM Quietwriter Graphics Printer and the IBM Color Jetprinter. Drawing Assistant does not work with the IBM Wheelwriter Printer or the IBM Quietwriter Printer.

Drawing Assistant works with a keyboard or one of these input devices.

- Microsoft Mouse, Model 037-099, (parallel interface) with Microsoft Mouse Adapter
- Microsoft Mouse, Model 039-099, (serial interface)
- Mouse Systems PC Mouse, part number 900120-214, (serial interface). The IBM PC PC/XT Mouse is compatible with the Mouse Systems PC Mouse, 3-button serial.
- Visi On Mouse, part number 69910-1011, (serial interface)

Graphing Assistant works with the IBM 2 or 6 pen plotter.

## Printers

**Note:** For details on the availability of other compatible equipment, please consult your supplier. IBM makes no warranty of any kind with respect to the use or suitability of non-IBM products.

- IBM Monochrome Display
- IBM Color Display
- IBM PCjr Color Display
- IBM Enhanced Color Display
- Color/Graphics Adapter attached to an 80-column video monitor
- IBM Graphics Printer
- IBM PC Compact Printer
- IBM Wheelwriter Printer
- IBM Quietwriter Printer
- IBM Quietwriter Graphics Printer
- IBM Proprinter
- IBM Color Jetprinter
- IBM Color Printer

Mainframe Communication Assistant works with:

- An IBM Asynchronous Communications Adapter or equivalent.
- A cable to connect the IBM Asynchronous Communications Adapter to a modem or to directly connect two IBM Personal Computers with a null modem.
- A full-duplex or half-duplex modem with a communications line (if not directly connected).

**Note:** A modem is not required if directly connecting two IBM Personal Computers in close proximity with a null modem.

To use Mainframe Communication Assistant for direct connection communication you need an IBM 3278/3279 Emulation Adapter.

Mainframe Communication Assistant opens the door to the communications environment. It allows your IBM Personal Computer to communicate with IBM host systems or other IBM Personal Computers.

You can use Mainframe Communication Assistant with the entire family of IBM Personal Computers. It allows your IBM Personal Computer to connect to host systems as though you were using an IBM 3101 or IBM 3277 terminal through asynchronous communications or as though you were using an IBM 3278 or 3279 terminal with an IBM 3278/3279 Emulation Adapter for direct communications.

With an IBM host operating system, MVS or VM, you can transfer ASCII or binary files between your PC and a host as complete files. You can also use Mainframe Communication Assistant to transfer complete ASCII or binary files between IBM Personal Computers.

Mainframe Communication Assistant provides the Assistant Series link to the communications environment. You can transfer host data base information into Filing Assistant files. These files can be used just like Filing Assistant data in other Assistant Series programs.



Here's how Mainframe Communication Assistant can be used in a business environment.

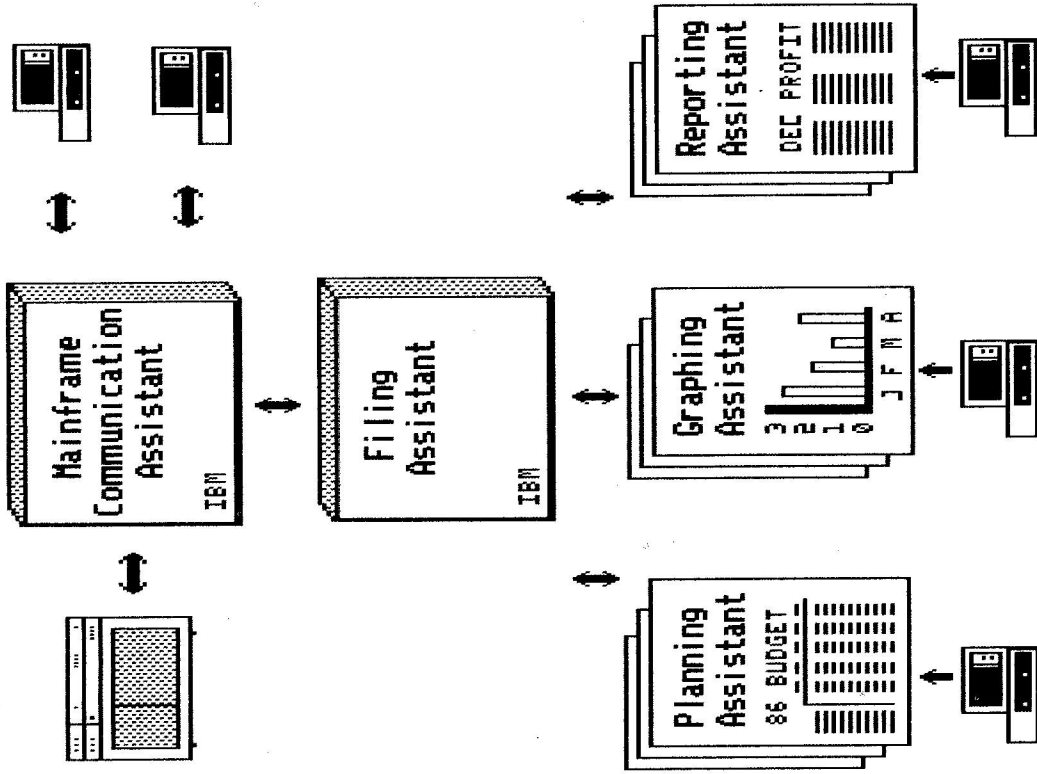
Hank Henry, owner of several car dealerships, ordered Mainframe Communication Assistant for each of his managers. They quickly learned how Mainframe Communication Assistant can be used with other members of the Assistant Series to increase the efficiency and productivity of their general sales and management operations.

Through Mainframe Communication Assistant's PC-to-Host communications capabilities, the managers can download host data on national inventory into **Filing Assistant**. Then, they can update inventory requirements tracked on a **Reporting Assistant** tabular report. Each manager can send his reports for next month's requirements to Hank using Mainframe Communication Assistant's PC-to-PC communication capabilities. Then, Hank can review each dealership's requirements and upload a single order to the host used by the car manufacturer's regional office. Although plenty of cars are available, Hank and his managers can track current inventory and order new automobiles without leaving their offices.

Hank can download host data on national corporate sales figures in DIF format. He can use **Graphing Assistant** to create a bar chart comparing the national figures to the sales figures from his dealerships. He can include this graph in his monthly newsletter created with **Writing Assistant**. Then, Hank can send the newsletter from his PC to each of his manager's PCs.

After he creates his budget on a **Planning Assistant** spreadsheet, he can upload the data to the host to be used as a shared file among all his dealerships. Then, only changes to the budget have to be uploaded each month, not the entire spreadsheet.

The following illustration shows how, through Filing Assistant, Mainframe Communication Assistant can be used with the other members of the Assistant Series.



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