Fourth Edition (September 1990)

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Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. IBM is not responsible for any radio or television interference caused by using other than recommended cables and connectors or by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Telecommunications Safety Requirements in the United Kingdom

The IBM Token-Ring Network products are made to high safety standards. They comply inherently with telecommunications safety standard BS6301. They are not designed to provide protection from excessive voltages appearing externally at their interfaces. Therefore, when these products are connected to a public telecommunications network via any other equipment, and you connect to these products items not supplied by IBM United Kingdom Ltd., you must comply with mandatory telecommunications safety requirements.

You may do this either by choosing products which also are approved as complying to BS6301 or British Telecom Technical Guide No.26, or by the use of approved safety barriers. Consult the local office of your public telecommunications operator for advice and permission to make the connections.

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This equipment does not exceed Class A limits per radio noise emissions for digital apparatus, set out in the Radio Interference Regulation of the Canadian Department of Communications. Operation in a residential area may cause unacceptable interference to radio and TV reception requiring the owner or operator to take whatever steps are necessary to correct the interference.

Avis de conformité aux normes du ministère des Communications du Canada

Cet équipement ne dépasse pas les limites de Classe A d'émission de bruits radioélectriques pour les appareils numériques, telles que prescrites par le Règlement sur le brouillage radioélectrique établi par le ministère des Communications du Canada. L'exploitation faite en milieu résidentiel peut entraîner le brouillage des réceptions radio et télé, ce qui obligerait le propriétaire ou l'opérateur à prendre les dispositions nécessaires pour en éliminer les causes.

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This equipment is Class 1 Equipment (information equipment to be used in commercial and industrial districts) which is in conformance with the standard set by Voluntary Control for Interference by Data Processing Equipment and Electronic Office Machines (VCCI) with an aim to prevent radio interference in commercial and industrial districts.

This equipment could cause interference to radio and television receivers when used in and around residential districts.

Please handle the equipment properly according to the instruction manual.
Special Notices

The following special notices apply to this publication.

System Security Advice

This product is intended for use within a single establishment and within a single, homogeneous user population. For sensitive applications requiring isolation from each other, management may wish to provide isolated cabling or to encrypt the sensitive data before putting it on the network.

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IBM Token-Ring Network OEMI

The following documents, together, comprise the IBM Token-Ring Network Other Equipment Manufacture Interface.

- IBM Cabling System Technical Interface Specification, GA27-3773
- IBM Local Area Network Technical Reference, SC30-3383
- IBM Token-Ring Network Architecture Reference, 6165877
This manual is written for the person who will plan for the installation of an IBM Token-Ring Network.

The most important requirement for you as a network planner is to be familiar with the needs of your organization. You do not need a background in Local Area Networks (LANs), but you should be familiar with the prerequisite publications listed below. This manual introduces you to the IBM Token-Ring Network and explains the process of planning the network in detail.

The IBM Token-Ring Network has been designed to be used with the IBM Cabling System. This manual can be used to plan networks for buildings that have already been wired with the IBM Cabling System and buildings for which permanently installed IBM Cabling System cable is planned.

There are various other media that the IBM Token-Ring Network may use.

For a network operating at 4 megabits per second (Mbps), you may, for instance, want to use IBM Cabling System patch cables instead of permanently installed building cable. In that case, see the IBM Token-Ring Network Guide to Small Networks. See Appendix A of this manual to plan 16 Mbps rings using patch cables.

For networks operating at 4 Mbps, you may want to use telephone twisted-pair media. See the IBM Token-Ring Network Telephone Twisted-Pair Media Guide for information about planning networks using that media.

Optical fiber cables can be used for networks operating at both 4 and 16 Mbps. If you want to use optical fiber cables and are planning a new installation, see Appendix D of this manual for information about using 62.5/125-micron optical fiber cable. However, if you want to use another size of optical fiber cable, see the IBM Token-Ring Network Optical Fiber Cable Options manual for guidance in qualifying other kinds of optical fiber cable for use with the IBM Token-Ring Network.

Prerequisite Publications

The following IBM publications are available from your IBM representative or your local IBM branch office:

- *Introduction to Local Area Networks*, GC20-8203
- *IBM Cabling System Planning and Installation Guide*, GA27-3361
- *Using the IBM Cabling System with Communication Products*, GA27-3620.
Related Publications

Consult the following publications for additional information about the IBM Token-Ring Network. To obtain these publications, contact your IBM representative or your local IBM branch office.

- *IBM Token-Ring Network Guide to Small Networks*, SK2T-0300
- *IBM Token Ring Network Telephone Twisted-Pair Media Guide*, GA27-3714
- *IBM Token-Ring Network Optical Fiber Cable Options*, GA27-3747
- *IBM Local Area Network Administrator's Guide*, GA27-3748
- *IBM Token-Ring Network Installation Guide*, GA27-3678
- *IBM Token-Ring Network Problem Determination Guide*, SY27-0280
- *IBM Local Area Network Technical Reference*, SC30-3383
- *IBM Token-Ring Network Architecture Reference*, SC30-3374

In addition to the publications listed above, IBM Token-Ring Network hardware and program products are accompanied by the documentation that is specific to that product.

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Using this Manual

Chapter 1 contains important introductory material about the IBM Token-Ring Network. You should read it first.

Chapter 2 describes planning both 4 and 16 Mbps networks for buildings with permanently installed IBM Cabling System cable. As you read Chapters 1 and 2, you may find it helpful to consult the charts in the pocket in the back of the manual depicting typical IBM Token-Ring Network installations.

Chapter 3 describes how to fill out the planning charts so that both installation and problem determination can be accomplished easily.

Chapter 4 describes the connections available to the rest of your establishment's network. Joining rings together using bridges, using gateways, and direct connection to host computers are all discussed.

Chapter 5 describes how to schedule and supervise the installation and checkout of an IBM Token-Ring Network.

Chapter 6 helps you to ensure that changes to the network, including migration from a 4 Mbps network to a 16 Mbps network, are completely planned and documented. Always remember that accurate network documentation is vital for network maintenance and problem determination.

Appendix A will help you if your installation does not fit within the guidelines in Chapter 2.

Appendix B provides you with blank planning forms. You may make as many copies of these forms as you need to plan your network.

Appendix C contains a sample program listing that will help you automate the record-keeping described in Chapter 2.

The charts in the pocket in the back of the manual depict typical IBM Token-Ring Network configurations and show filled-in copies of the forms necessary to plan the network. Many of the illustrations in the manual are portions of these charts used to highlight portions of the planning process.

Appendix D contains a specification for 62.5/125-micron optical fiber cable that is both suitable for use with IBM Token-Ring Networks and meets the standards of the cable specified by the Fiber Distributed Data Interface standard.

The Glossary defines terms that apply to LANs in general and the IBM Token-Ring Network in particular.

Changes to this Edition

This edition adds information about the IBM 8230 Controlled Access Unit. Information about using IBM 8218 Copper Repeaters and IBM 8219 Optical Fiber Repeaters has been moved from Chapter 2 to Appendix A. Appendix D has been added to offer guidance on selecting optical fiber cables for use with IBM Token-Ring Networks.
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