

Cisco DSLAM Compatibility Notes

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This document details the hardware and software compatibility among Cisco digital subscriber line access multiplexer (DSLAM) chassis, line cards, NI-2 cards, I/O cards, and I/O modules.

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Cisco DSLAM and Line Card Compatibility

The following line cards are available for the DSLAMs:

- Octal-port ITU-C (8xIDSL)
- Octal-port G.SHDSL SHTU-C (8xG.SHDSL)
- Octal-port DMT ATU-C over ISDN (8xDMT over ISDN)
- Octal-port DMT ATU-C (8xDMT)
- Quad-port STU-C (4xSDSL)
- Quad-port flexi (CAP, DMT, or G.lite) ATU-C (4xflexi)
- Quad-port DMT over ISDN (4xDMT over ISDN)



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- Quad-port DMT ATU-C (4xDMT)
- Dual-port DMT ATU-C (2xDMT)
- Dual-port CAP ATU-C (2xCAP)

The following sections detail the line card compatibility among the DSLAMs:

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Cisco 6015 System

Table 1 lists the line cards available for the Cisco 6015 system, their associated product numbers, and minimum software and network management requirements.

Table 1 Cisco 6015 System Line Card Compatibility

Line Card	Product Number	Minimum Software and Network Management Release Requirements	
		Cisco IOS	CDM ¹ (optional)
8xG.SHDSL ²	STUC-8-SHDSL-1=	Release 12.1(7)DA ³	Release 3.3(3) ⁴
8xDMT over ISDN	ATUC-8-DMT-I-1=	Release 12.2(5)DA	Release 3.3(3-2)
8xDMT	Commercial: ATUC-8-DMT-1=	Release 12.1(6)DA	Release 3.3(2)
	Outside-plant environment: ATUC-8-DMT-1-H=	Release 12.2(5)DA	Release 3.4
4xflexi	ATUC-4-FLX-2=	Release 12.1(4)DA	Release 3.2

1. CDM = Cisco DSL Manager
2. The 8xG.SHDSL is used in a Cisco 6015 without a POTS splitter configuration only.
3. The minimum Cisco IOS requirement for rate adaptive digital subscriber line (RADSL) is Release 12.2(7)DA.
4. The minimum CDM requirement for RADSL is Release 3.4.

Cisco 6100 with NI-1 System

Table 2 lists the line cards available for the Cisco 6100 with NI-1 system, their associated product numbers, and minimum software and network management requirements.

Table 2 Cisco 6100 with NI-1 System Line Card Compatibility

Line Card	Product Number	Minimum Software and Network Management Release Requirements		
		ViewRunner for HP OpenView	ViewRunner for Windows	CDM (optional)
4xflexi	ATUC-4-FLX-1= or ATUC-4-FLX-2=	Release 3.0.0	Release 3.0.0	Release 3.0 (CAP mode only)
2xDMT	ATUC-2-DMT2-DIR-1=	Release 2.4.1	Release 2.4.1	Release 3.0
2xCAP	ATUC-2-CAP-DIR-2=	Release 2.3.5	Release 2.3.5	Release 3.0
	ATUC-2-CAP-DOH-2= ¹	Release 2.3.0	Release 2.3.0	

1. Use in a Digital Off-Hook (DOH) configuration.



Note

The Cisco 6100 with NI-1 system does not support a Direct Connect without a POTS splitter configuration.

The DOH configuration feature is not supported in ViewRunner Release 2.4.x.

Cisco 6100 with NI-2 System

Table 3 lists the line cards available for the Cisco 6100 with NI-2 system, their associated product numbers, and minimum software and network management requirements.

Table 3 Cisco 6100 with NI-2 System Line Card Compatibility

Line Card	Product Number	Minimum Software and Network Management Release Requirements	
		Cisco IOS	CDM (optional)
4xflexi	ATUC-4-FLX-1= or ATUC-4-FLX-2=	Release 12.1(2)DA	Release 3.2



Note

The Cisco 6100 with NI-2 system supports only a Direct Connect with a POTS splitter configuration.

Cisco 6130 with NI-1 System

Table 4 lists the line cards available for the Cisco 6130 with NI-1 system, their associated product numbers, and minimum software and network management requirements.

Table 4 Cisco 6130 with NI-1 System Line Card Compatibility

Line Card	Product Number	Minimum Software and Network Management Release Requirements		
		ViewRunner for HP OpenView	ViewRunner for Windows	CDM (optional)
4xSDSL ¹	STUC-4-2B1Q-DIR-2=	Release 2.4.1	Release 2.4.1	Release 3.3
4xflexi	ATUC-4-FLX-1= or ATUC-4-FLX-2=	Release 3.0.0	Release 3.0.0	Release 3.3
2xDMT	ATUC-2-DMT2-DIR-1=	Release 2.4.1	Release 2.4.1	Release 3.3

1. The 4xSDSL is used in a Direct Connect without a POTS splitter configuration only.



Note

The Cisco 6130 with NI-1 system does not support a DOH configuration.

Cisco 6130 with NI-2 System

Table 5 lists the line cards available for the Cisco 6130 with NI-2 system, their associated product numbers, and minimum software and network management requirements.

Table 5 Cisco 6130 with NI-2 System Line Card Compatibility

Line Card	Product Number	Minimum Software and Network Management Release Requirements	
		Cisco IOS	CDM (optional)
4xSDSL ¹	STUC-4-2B1Q-DIR-2=	Release 12.1(1)DA	Release 3.2
4xflexi	ATUC-4-FLX-1= or ATUC-4-FLX-2=	Release 12.1(1)DA	Release 3.2
4xDMT	ATUC-1-4DMT-2=	Release 12.0(8)DA	Release 3.2

1. The 4xSDSL is used in a Cisco 6130 without a POTS splitter configuration only.

Cisco 6160 System

Table 6 lists the line cards available for the Cisco 6160 system, their associated product numbers, and minimum software and network management requirements.

Table 6 Cisco 6160 System Line Card Compatibility

Line Card	Product Number	Minimum Software and Network Management Release Requirements	
		Cisco IOS	CDM (optional)
8xIDSL	ITUC-8-2B1Q-DIR-1=	Release 12.1(2)DA	Release 3.2
8xG.SHDSL ¹	STUC-8-SHDSL-1=	Release 12.1(7)DA ²	Release 3.3(3) ³
8xDMT	ATUC-8-DMT-1=	Release 12.1(6)DA	Release 3.3(2)
4xSDSL ¹	STUC-4-2B1Q-DIR-2=	Release 12.1(1)DA	Release 3.0
4xflexi	ATUC-4-FLX-2=	Release 12.1(1)DA	Release 3.0

1. The 8xG.SHDSL and 4xSDSL are used in a Cisco 6160 without a POTS splitter configuration only.
2. The minimum Cisco IOS requirement for rate adaptive digital subscriber line (RADSL) is Release 12.2(7)DA.
3. The minimum CDM requirement for RADSL is Release 3.4.

Cisco 6260 System

Table 7 lists the line cards available for the Cisco 6260 system, their associated product numbers, and minimum software and network management requirements.

Table 7 Cisco 6260 System Line Card Compatibility

Line Card	Product Number	Minimum Software and Network Management Release Requirements	
		Cisco IOS	CDM (optional)
8xG.SHDSL ¹	STUC-8-SHDSL-1=	Release 12.1(7)DA ²	Release 3.3(3) ³
8xDMT over ISDN	ATUC-8-DMT-I-1=	Release 12.2(5)DA	Release 3.3(3-2)
8xDMT	ATUC-8-DMT-1=	Release 12.1(6)DA	Release 3.3(2)
4xSDSL ¹	STUC-4-2B1Q-DIR-2=	Release 12.1(4)DA	Release 3.0
4xflexi (DMT mode only)	ATUC-4-FLX-2=	Release 12.1(5)DA	Release 3.2
4xDMT over ISDN	ATUC-1-4DMT-I=	Release 12.1(3)DA	Release 3.2
4xDMT	ATUC-1-4DMT-2=	Release 12.0(5)DA ⁴	Release 3.0

1. The 8xG.SHDSL and 4xSDSL are used in a Cisco 6260 without a POTS splitter configuration only.
2. The minimum Cisco IOS requirement for rate adaptive digital subscriber line (RADSL) is Release 12.2(7)DA.
3. The minimum CDM requirement for RADSL is Release 3.4.
4. 4xDMT Revision 800-05262-03 or greater, use Release 12.0(8)DA or later.

Cisco DSLAM Line Card Intermixing

The following sections provide information about how the line cards can be intermixed within each DSLAM:

- [Cisco 6015 System Line Card Intermixing, page 6](#)
- [Cisco 6100 with NI-1 System Line Card Intermixing, page 6](#)
- [Cisco 6100 with NI-2 System Line Card Intermixing, page 6](#)
- [Cisco 6130 with NI-1 System Line Card Intermixing, page 6](#)
- [Cisco 6130 with NI-2 System Line Card Intermixing, page 7](#)
- [Cisco 6160 System Line Card Intermixing, page 7](#)
- [Cisco 6260 System Line Card Intermixing, page 9](#)

Cisco 6015 System Line Card Intermixing

The Cisco 6015 chassis supports line card intermixing. However, mixing cards with different types of encoding (ADSL or SHDSL) on the same side of the chassis could result in decreased performance of the loop due to overlapping frequency spectrums. To minimize potential performance degradation in the binder, install ADSL and SHDSL line cards in separate halves of the chassis. For example, if you install 4xflexis on the left side of the chassis (slots 1 to 3), install 8xG.SHDSLs on the right side of the chassis (slots 4 to 6).

Cisco 6100 with NI-1 System Line Card Intermixing

The Cisco 6100 with NI-1 system supports line card intermixing in separate chassis halves. The left half of the chassis comprises slots 1 to 8 and 21 to 28; the right half comprises slots 13 to 20 and 31 to 38.

**Note**

You can intermix only the 4xflexi (CAP mode) and the 4xflexi (DMT mode) in the same chassis half; however, these cannot be intermixed in the same quadrant.

Cisco 6100 with NI-2 System Line Card Intermixing

The 4xflexi is the only line card that can be used in the Cisco 6100 with NI-2 system. You can intermix the 4xflexi (CAP mode) and the 4xflexi (DMT mode) in the same chassis half; however, these cannot be intermixed in the same quadrant.

Cisco 6130 with NI-1 System Line Card Intermixing

The Cisco 6130 with NI-1 system supports line card intermixing in separate chassis halves. The left half of the chassis comprises slots 1 to 8 and 21 to 28; the right half comprises slots 13 to 20 and 31 to 38.

**Note**

You can intermix only the 4xflexi (CAP mode) and the 4xflexi (DMT mode) in the same chassis half; however, these cannot be intermixed in the same quadrant.

Cisco 6130 with NI-2 System Line Card Intermixing

The Cisco 6130 with NI-2 system supports line card intermixing in separate chassis halves. The left half of the chassis comprises slots 1 to 8 and 21 to 28; the right half comprises slots 13 to 20 and 31 to 38. The line card intermixing configurations that are supported in a separate chassis halves are:

- 4xflexi (CAP mode) and 4xflexi (DMT mode)
- 4xflexi (CAP mode) and 4xSDSL
- 4xflexi (DMT mode) and 4xSDSL



Note

You can intermix only the 4xflexi (CAP mode) and the 4xflexi (DMT mode) line cards in the same chassis half; however, they cannot be intermixed in the same quadrant.

Cisco 6160 System Line Card Intermixing

The Cisco 6160 chassis supports line card intermixing. The following sections use the terms *halves* and *quadrants*. The Cisco 6160 chassis consists of two halves:

- First half—Slots 1 to 9 and slots 19 to 27
- Second half—Slots 12 to 18 and slots 28 to 34

The Cisco 6160 chassis consists of four quadrants:

- Quadrant 1—Slots 1 to 9
- Quadrant 2—Slots 12 to 18
- Quadrant 3—Slots 19 to 27
- Quadrant 4—Slots 28 to 34



Note

Slots 18 and 34 cannot contain line cards with different modulation types. For example, if slot 18 contains an 8xDMT line card, slot 34 must contain an 8xDMT or 4xFlexiDMT line card or be empty. If slot 34 contains an 8xG.SHDSL line card, slot 18 must contain an 8xG.SHDSL line card or be empty.

The following sections describe the line card intermixing guidelines for the Cisco 6160.

Guidelines for Intermixing xDSL Line Cards

The guidelines for intermixing line cards in the Cisco 6160 chassis are as follows:

- You can intermix different line cards in the same chassis quadrant as long as the line cards use the same modulation type.
- You cannot intermix line cards with different modulation types in the same chassis quadrant.

For example, you can install a 4xFlexiDMT line card and an 8xDMT line card in the same chassis quadrant. However, you cannot install a 4xFlexiDMT or 8xDMT line card in the same chassis quadrant as a 4xFlexiCAP line card.

Due to spectral compatibility limitations in the right side configuration of the Cisco 6160 chassis, line card slots 18 and 34 should be configured as specified in [Table 8](#).

Table 8 Cisco 6160 Right Side Configuration Guidelines

Slot 18	Slot 34	Configuration
8xG.SHDSL	8xG.SHDSL	Supported
8xG.SHDSL	ADSL	Not supported
8xG.SHDSL	Empty	Supported
ADSL	ADSL	Supported
ADSL	8xG.SHDSL	Not supported
ADSL	Empty	Supported

Guidelines for Intermixing 8xG.SHDSLs—Cisco IOS Release 12.2(7)DA and Forward

The Cisco 6160 chassis supports up to 16 8xG.SHDSLs installed per chassis while retaining quality of service (QoS). When an 8xG.SHDSL is installed in a quadrant, no ADSL line cards can be installed in that same quadrant.

[Figure 1](#) illustrates the optimal deployment of 8xG.SHDSLs and quadrant intermixing of ADSL line cards in the Cisco 6160 chassis. For example:

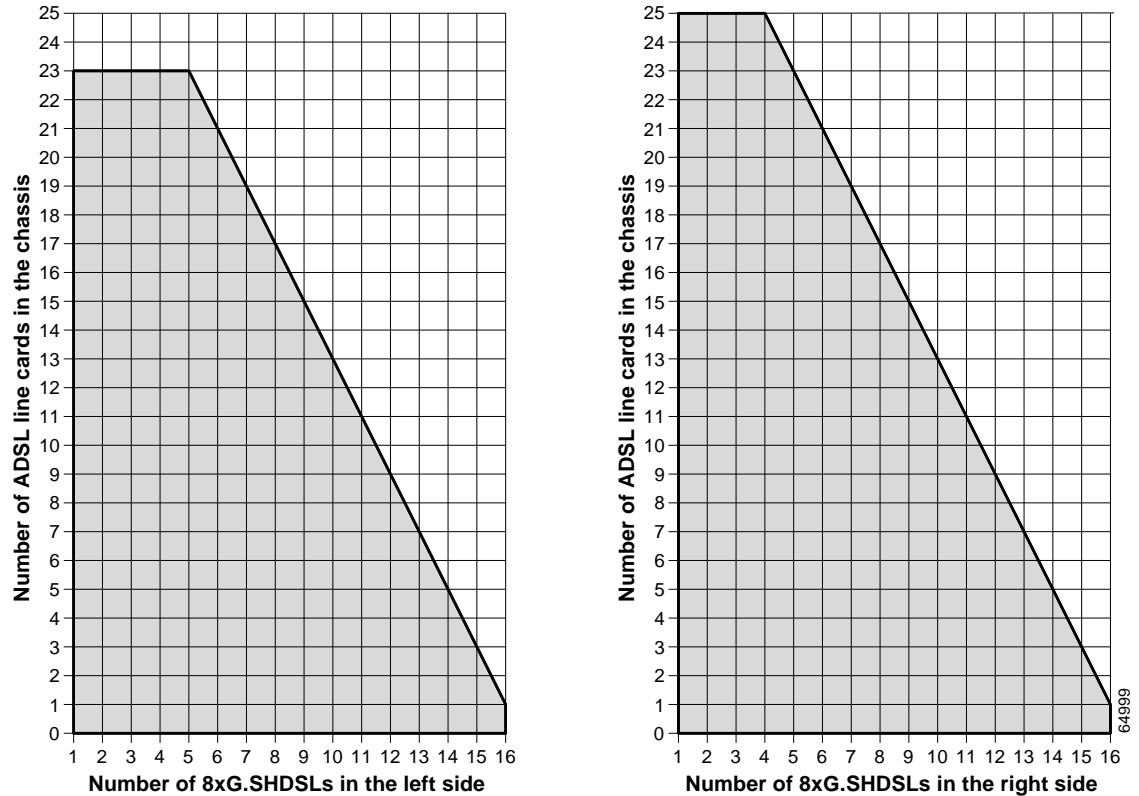
- If 4 8xG.SHDSLs are installed in the left side of the chassis, only 25 ADSL line cards can be installed in the remaining quadrants.
- If 4 8xG.SHDSLs are installed in the right side of the chassis, only 23 ADSL line cards can be installed in the remaining chassis quadrants.



Note

Random cell loss might occur if the guidelines for 8xG.SHDSL deployment in a system are exceeded.

Figure 1 8xG.SHDSL and ADSL Line Card Intermixing in the Cisco 6160 Chassis



Cisco 6260 System Line Card Intermixing

The Cisco 6260 chassis supports line card intermixing. The following sections use the terms *halves* and *quadrants*. The Cisco 6260 chassis consists of two halves:

- First half—Slots 1 to 9 and slots 18 to 26
- Second half—Slots 12 to 17 and slots 27 to 32

The Cisco 6160 chassis consists of four quadrants:

- Quadrant 1—Slots 1 to 9
- Quadrant 2—Slots 12 to 17
- Quadrant 3—Slots 18 to 26
- Quadrant 4—Slots 27 to 32



Note

Slots 18 and 34 cannot contain line cards with different modulation types. For example, if slot 18 contains an 8xDMT line card, slot 34 must contain an 8xDMT or 4xFlexiDMT line card or be empty. If slot 34 contains an 8xG.SHDSL line card, slot 18 must contain an 8xG.SHDSL line card or be empty.

The following sections detail the line card intermixing guidelines for the Cisco 6260.

Guidelines for Intermixing xDSL Line Cards

The guidelines for intermixing line cards in the Cisco 6260 chassis are as follows:

- You can intermix different line cards in the same chassis quadrant as long as the line cards use the same modulation type.
- You cannot intermix line cards with different modulation types in the same chassis quadrant.

For example, you can install a 4xFlexiDMT line card and an 8xDMT line card in the same chassis quadrant. However, you cannot install a 4xFlexiDMT or 8xDMT line card in the same chassis quadrant as a 4xFlexiCAP line card.

Guidelines for Intermixing 8xG.SHDSLs—Cisco IOS Release 12.2(7)DA and Later

The Cisco 6260 chassis supports up to 16 8xG.SHDSLs installed per chassis while retaining QoS. When an 8xG.SHDSL is installed in a quadrant, no ADSL line cards can be installed in that same quadrant.

Figure 2 illustrates the optimal deployment of 8xG.SHDSLs and quadrant intermixing of ADSL line cards in the Cisco 6260 chassis. For example:

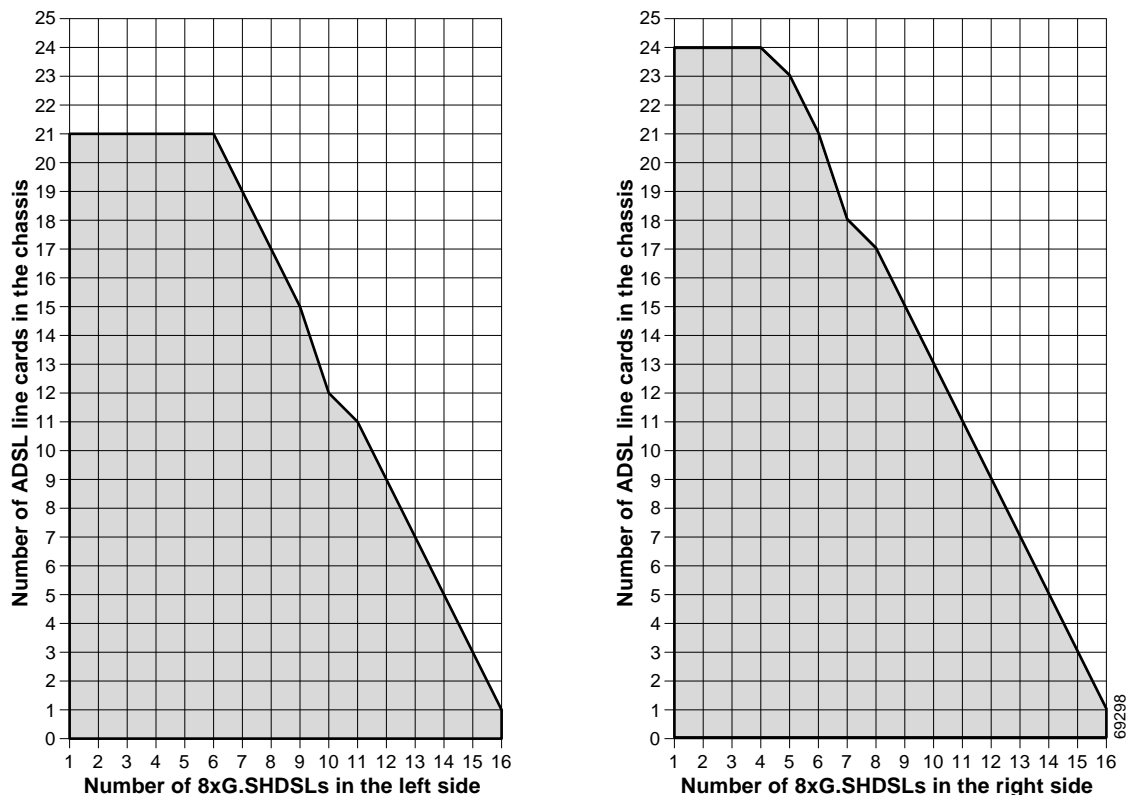
- If 4 8xG.SHDSLs are installed in the left side of the chassis, only 21 ADSL line cards can be installed in the remaining quadrants.
- If 4 8xG.SHDSLs are installed in the right side of the chassis, only 24 ADSL line cards can be installed in the remaining chassis quadrants.



Note

Random cell loss might occur if the guidelines for 8xG.SHDSL deployment in a system are exceeded.

Figure 2 8xG.SHDSL and ADSL Line Card Intermixing in the Cisco 6260 Chassis



Cisco DSLAM and NI-2 Card Compatibility

Table 9 lists the NI-2 cards that can be installed in each of the DSLAM chassis, as well as the associated product numbers.

Table 9 NI-2 Card and Chassis Compatibility

NI-2 Card	Product Number	Cisco 6015	Cisco 6100/6130	Cisco 6160	Cisco 6260
DS3+T1/E1 IMA ¹	NI-2-DS3-T1E1=	Yes ²	No	Yes ³	Yes ⁴
ITEMP ⁵ DS3+T1/E1 IMA	NI-2-DS3-T1E1-H=	Yes ⁶	No	No	No
DS3/2DS3	NI-2-DS3-DS3=	No	Yes	Yes	Yes ^{7 8}
OC-3c/2DS3 SMF	NI-2-155SM-DS3=	No	No	Yes	No
OC-3c/2DS3 MMF	NI-2-155MM-DS3=	No	No	Yes	No
OC-3c/OC-3c SMF ⁹	NI-2-155SM-155SM=	Yes ²	Yes	Yes	Yes ¹⁰
OC-3c/OC-3c MMF ¹¹	NI-2-155MM-155MM=	Yes ²	Yes	Yes	Yes ¹⁰

1. IMA = inverse multiplexing over ATM.
2. In a Cisco 6015 system, use only in a commercial environment.
3. In a Cisco 6160 system, use only with the DS3/2DS3+8xT1 IMA I/O card (part number 6160-1-I/O-2=).
4. In a Cisco 6260 system, use only with the E1 I/O module.
5. ITEMP = industrial temperature.
6. In a Cisco 6015 system, use only in an outside plant environment.
7. When the DS3/2DS3 NI-2 card and the E3 I/O module are installed in the Cisco 6260 chassis, the system adopts E3 functionality.
8. In a Cisco 6260 system, use only with the E3 I/O module.
9. SMF = single-mode fiber.
10. In a Cisco 6260 system, use only with the OC-3c I/O module.
11. MMF = multimode fiber.

Table 10 and Table 11 list the minimum Cisco IOS software and network management requirements to provision and manage the NI-2 cards.



Note

Network management through CDM is optional.

Table 10 Recommended Minimum Cisco IOS Software Requirements

NI-2 Card	Cisco 6015	Cisco 6100 ¹	Cisco 6130 ¹	Cisco 6160 ¹	Cisco 6260 ¹
DS3+T1/E1 IMA	12.1(4)DA	—	—	12.1(6)DA	12.1(7)DA2
ITEMP DS3+T1/E1 IMA	12.2(5)DA	—	—	—	—
DS3/2DS3	—	12.1(2)DA	12.0(8)DA	12.1(1)DA ²	12.1(4)DA
OC-3c/2DS3	—	—	—	12.1(1)DA ²	—
OC-3c/OC-3c	12.2(5)DA	12.1(2)DA	12.0(8)DA	12.1(1)DA ²	12.0(5)DA

1. The minimum Cisco IOS software requirement for a redundant NI-2 card configuration is 12.1(7)DA.
2. If a DS3/2DS3+8xT1 IMA I/O card (part number 6160-1-I/O-2=) is installed in the Cisco 6160, the minimum IOS release will be 12.1(6)DA.

Table 11 Recommended Minimum CDM Requirements

NI-2 Card	Cisco 6015	Cisco 6100	Cisco 6130	Cisco 6160	Cisco 6260
DS3+T1/E1 IMA	3.2	—	—	3.3(2)	3.3(3)
ITEMP DS3+T1/E1 IMA	3.4	—	—	—	—
DS3/2DS3	—	3.2	3.0/3.2	3.0/3.2 ¹	3.3
OC-3c/2DS3	—	—	—	3.0/3.2 ¹	—
OC-3c/OC-3c	3.2	3.2	3.0/3.2	3.0/3.2 ¹	3.0

1. If a DS3/2DS3+8xT1 IMA I/O card (part number 6160-1-I/O-2=) is installed in the Cisco 6160, the minimum CDM release will be 3.3(2).

Cisco DSLAM I/O and NI-2 Card Compatibility

The following sections provide information about the I/O and NI-2 card compatibility among the DSLAMs:

- [Cisco 6015 I/O Module and NI-2 Card Compatibility, page 13](#)
- [Cisco 6160 I/O Card and NI-2 Card Compatibility, page 13](#)
- [Cisco 6260 I/O Module and NI-2 Card Compatibility, page 14](#)



Note

The Cisco 6100 and Cisco 6130 have only one type of I/O card available; therefore, they are not listed in the following sections.

The I/O cards and I/O modules require a minimum version of the IOS and network management software to operate properly. If your NI-2 card requires a later version of the software, install the later version. For minimum software and network management requirements for the NI-2 cards, see the [“Cisco DSLAM and NI-2 Card Compatibility”](#) section on page 11.

Cisco 6015 I/O Module and NI-2 Card Compatibility

Table 12 lists the Cisco 6015 I/O modules, their associated product numbers, and minimum software and network management requirements for the I/O modules. Both Cisco 6015 I/O modules are compatible with the DS3+T1/E1 IMA, ITEMP DS3+T1/E1 IMA, or OC-3c/OC-3c NI-2 card.



Note

The I/O module does not function when you use an OC-3c/OC-3c NI-2 card in the Cisco 6015; however, an I/O module must be installed in the chassis for the system to operate correctly. The OC-3c/OC-3c NI-2 card does not support the DS3, E1, or T1 interfaces found on the front of the I/O modules. Therefore, the trunk and subtending interfaces are provided on the front of the OC-3c/OC-3c NI-2 card.

Table 12 I/O Module and NI-2 Card Compatibility

I/O Module	Product Number	NI-2 Cards		Minimum Software and Network Management Release Requirements for the I/O Modules	
		DS3+T1/E1 IMA and ITEMP DS3+T1/E1 IMA	OC-3c/OC-3c	Cisco IOS	CDM (optional)
DS3+T1	6015-DS3/T1-IO=	Yes	Yes	Release 12.1(4)DA	Release 3.2
E1	6015-E1-IO=	Yes	Yes	Release 12.1(4)DA	Release 3.2

Cisco 6160 I/O Card and NI-2 Card Compatibility

Table 13 lists the Cisco 6160 I/O cards and NI-2 card compatibility, their associated product numbers, and minimum software and network management requirements for the I/O cards.

Table 13 I/O Card and NI-2 Card Compatibility

I/O Card	Product Number	NI-2 Cards				Minimum Software and Network Management Release Requirements for the I/O Cards	
		DS3+T1/E1 IMA	DS3/2DS3	OC-3c/2DS3	OC-3c/OC-3c	Cisco IOS	CDM (optional)
DS3/2DS3+8xT1 IMA	6160-1-I/O-2=	Yes	Yes	Yes	Yes	Release 12.1(6)DA	Release 3.3(2)
DS3/2DS3	6160-1-I/O-1=	No	Yes	Yes	Yes	Release 12.1(1)DA	Release 3.0/3.2

Cisco 6260 I/O Module and NI-2 Card Compatibility

Table 14 lists the Cisco 6260 I/O modules and NI-2 card compatibility, their associated product numbers, and minimum software and network management requirements for the I/O modules.

Table 14 I/O Module and NI-2 Card Compatibility

I/O Module	Product Number	NI-2 Cards			Minimum Software and Network Management Release Requirements for the I/O Modules	
		DS3+T1/E1 IMA	DS3/2DS3	OC-3c/OC-3c	Cisco IOS	CDM
E1	IO-8XE1IMA=	Yes	No	No	Release 12.1(7)DA2	Release 3.3(3)
E3	IO-E3x2E3=	No	Yes	No	Release 12.1(4)DA	Release 3.3
OC-3c	IO-BOARD-1-62=	No	No	Yes	Release 12.0(5)DA	Release 3.0



Note When the DS3/2DS3 NI-2 card is installed in the Cisco 6260 chassis, it adopts E3 functionality.

Related Documentation

A complete list of all DSL product related documentation is available on the World Wide Web at http://www.cisco.com/univercd/cc/td/doc/product/dsl_prod/index.htm.

Obtaining Documentation

The following sections explain how to obtain documentation from Cisco Systems.

World Wide Web

You can access the most current Cisco documentation on the World Wide Web at the following URL:

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- Order Cisco learning materials and merchandise
- Register for online skill assessment, training, and certification programs

You can self-register on Cisco.com to obtain customized information and service. To access Cisco.com, go to the following URL:

<http://www.cisco.com>

Technical Assistance Center

The Cisco TAC is available to all customers who need technical assistance with a Cisco product, technology, or solution. Two types of support are available through the Cisco TAC: the Cisco TAC Web Site and the Cisco TAC Escalation Center.

Inquiries to Cisco TAC are categorized according to the urgency of the issue:

- Priority level 4 (P4)—You need information or assistance concerning Cisco product capabilities, product installation, or basic product configuration.
- Priority level 3 (P3)—Your network performance is degraded. Network functionality is noticeably impaired, but most business operations continue.
- Priority level 2 (P2)—Your production network is severely degraded, affecting significant aspects of business operations. No workaround is available.
- Priority level 1 (P1)—Your production network is down, and a critical impact to business operations will occur if service is not restored quickly. No workaround is available.

Which Cisco TAC resource you choose is based on the priority of the problem and the conditions of service contracts, when applicable.

Cisco TAC Web Site

The Cisco TAC Web Site allows you to resolve P3 and P4 issues yourself, saving both cost and time. The site provides around-the-clock access to online tools, knowledge bases, and software. To access the Cisco TAC Web Site, go to the following URL:

<http://www.cisco.com/tac>

All customers, partners, and resellers who have a valid Cisco services contract have complete access to the technical support resources on the Cisco TAC Web Site. The Cisco TAC Web Site requires a Cisco.com login ID and password. If you have a valid service contract but do not have a login ID or password, go to the following URL to register:

<http://www.cisco.com/register/>

If you cannot resolve your technical issues by using the Cisco TAC Web Site, and you are a Cisco.com registered user, you can open a case online by using the TAC Case Open tool at the following URL:

<http://www.cisco.com/tac/caseopen>

If you have Internet access, it is recommended that you open P3 and P4 cases through the Cisco TAC Web Site.

Cisco TAC Escalation Center

The Cisco TAC Escalation Center addresses issues that are classified as priority level 1 or priority level 2; these classifications are assigned when severe network degradation significantly impacts business operations. When you contact the TAC Escalation Center with a P1 or P2 problem, a Cisco TAC engineer will automatically open a case.

To obtain a directory of toll-free Cisco TAC telephone numbers for your country, go to the following URL:

<http://www.cisco.com/warp/public/687/Directory/DirTAC.shtml>

Before calling, please check with your network operations center to determine the level of Cisco support services to which your company is entitled: for example, SMARTnet, SMARTnet Onsite, or Network Supported Accounts (NSA). In addition, please have available your service agreement number and your product serial number.

This document is to be used in conjunction with the documents listed in the “[Related Documentation](#)” section.

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