What's New in NBX® R6.0

Version 1.0 November, 2005

NBX R6.0 introduces new call processor platforms and new or enhanced software features. *What's New in NBX R6.0* summarizes the changes in the NBX system.

The information in this guide is based on product specifications that are subject to change.

NBX R6.0 New Hardware

NBX V3001R

The NBX V3001R (3C10602A) is the new high end NBX platform to replace the SuperStack3 NBX V5000. The V3001R features a standard redundant power supply, an optional disk mirroring system, 512 MB of memory, and more processing power than any previous NBX system.

V3000 BRI-ST

The 3Com NBX V3000 BRI-ST (3C10601A) extends the 3Com NBX family by providing ISDN BRI telephony connectivity to small organizations while lowering the cost and complexity of an initial deployment by offering integrated call management, voice mail, and central office connectivity in a one self-contained platform. The system features 4 ports / 8 channels of BRI connectivity, (2 ports are enabled by default with the additional 2 ports/4 channels requiring a license) and 2 analog (FXS) ports. An optional memory upgrade enables the V3000 BRI-ST to support up to 1500 devices.

3102B Business Telephone

The 3Com 3102B Business Telephone (3C10402B) is an updated version of the 3102 with new electronics and support for wideband audio. For more information, see Wideband Audio on page 17.

NBX BRI-ST Card

The NBX ISDN BRI-ST (Basic Rate Interface) Digital Line Card (3C10164D-ST) is a refreshed version of the NBX BRI card. It has 4 ports/ 8 channels of connectivity for ETSI compliant central office connectivity. The new card supports all of the audio compression codecs available on the NBX system. The card also supports DHCP option 184.

NBX V3001 4-slot chassis

The V3001 4-slot chassis (3C10605A) is a new, lower cost alternative to the V5000 chassis. The chassis supports all of the NBX line cards. The new V3001 chassis shares its appearance with the V5000 chassis but has a lower cost design with a single power supply and no support for redundant power. For a chassis with available power redundancy, you can still order the NBX V5000 Gateway Chassis.

3Com 3108 Wireless Telephone

The 3Com 3108 Wireless Telephone is a high quality, cost-effective, wireless (802.11d) clamshell type VoIP telephone.

The 3108 Wireless Telephone uses SIP (Session Initiation Protocol) as the control protocol. The 3108 operates with an NBX system that is running in SIP mode. It requires an NBX Group 1 license.

3108 Wireless Telephone features:

- Supports security with WEP-64bit, WEP-128bit, and SSID.

- Lithium ion battery provides over 2 hours talk time and over 90 hours stand-by time.

- Can be configured through the phone's display and built-in configuration menus.

- Volume controls for ring volume and handset/headset.

- Large illuminated color display panel.

- Supports these telephone functions: make and receive calls, hold, transfer, mute, call waiting, call forward, 3 way conference (participate only), speed dial, missed call alert, Caller ID, DTMF Relay (to ensure compatibility with interactive voice response systems).

- Supports these supplemental services: call history, phonebook, voice mail, call progress ring tone, profile setting, phone lock, calendar, calculator, clock, to do list, world time, and notes.

- Fully compliant with the IEEE 802.11b and 802.11g WLAN standards.

NBX R6.0 New System Features

SIP Mode NBX

An NBX system running R6.0 can operate using the standard NBX control protocols or it can operate using the IETF Session Initiation Protocol (SIP) and the Real-Time Transport Protocol (RTP) as the underlying communications infrastructure.

SIP works at the application-layer. RTP provides end-to-end network transport functions that are suitable for applications that transmit real-time data. SIP on the NBX is an optional feature that requires a license key. You use the NBX NetSet utility to enable and configure SIP mode.

SIP Mode Details

An NBX system running in SIP mode can interoperate with any other SIP endpoint, including gateways, devices, and SIP-enabled applications. An NBX system running in SIP mode adds some features, such as 3Com 3108 Wireless Telephone support, and some restrictions, such as no support for SIP on the NBX 100. This section lists the issues you need to consider before you enable SIP.

- An NBX system in SIP mode uses Standard IP as the network protocol. If you enable SIP on an NBX system that is using Ethernet mode or IP on the Fly, the system automatically switches to Standard IP. You would typically configure a DHCP server to provide IP information to devices and configure Option 184 on the server to provide the NCP IP address.

- NBX Messaging is not available on an NBX system running in SIP mode. For messaging features, (voice mail, auto attendant, Music on Hold, and ACD Delayed Announcements), you must integrate an external messaging system, such as 3Com IP Messaging 3.0, which is sold separately. The NBX system can communicate with the 3Com IP Messaging system to automatically create mailboxes. The 3Com IP Messaging Server can be configured to synchronize periodically with the NBX system.

- Internal paging is not supported. External paging is supported.

- A user can login at different phones (Hot Desking), but only one login at a time is allowed. If a user is on a call, and then that user logs into another phone, the first call will be disconnected. This feature is not available in an NBX system that is not running SIP mode.

- For Emergency 911 calls, you can configure a 3Com telephone to use an alternate SIP gateway to connect calls when the NBX system is down. 3Com telephones do not support the DHCP option for providing an alternate SIP gateway address so this feature requires manual configuration.

- Button mapping is not supported for the 3Com 3108 Wireless Telephone or generic SIP telephones, that is, third party telephones that support the SIP protocol. You cannot map a CO Line to a generic SIP telephone or a 3108 Wireless Telephone. SIP devices can not be bridged extensions.

- Conferences can include up to three parties, the Conference Originator, and two other conference parties either internal or external. The limit is four parties on an NBX system that is not running in SIP mode. However, the number of simultaneous conference sessions (each session = 4 parties) supported in non-SIP mode, increases beyond the current NBX limit of 12. The number of simultaneous conferences supported in SIP mode is limited only by the number of free ports available on the 3Com IP Messaging application or other third party messaging application. For support for conferences that require more than 3 parties, you can configure the optional 3Com Conference Server application.

- Most 3Com devices can initiate and participate in conferences. The 3108 Wireless Telephone and generic SIP telephones can participate in a conference call but you cannot use these devices to add extensions to a conference.

- You must manually configure 3Com 3108 Wireless Telephones and generic SIP devices. For 3Com devices you can continue to use the NBX Auto Discover feature.

- NBX Virtual Tie Lines are not available on an NBX system running in SIP mode. However, you can achieve the same result, connecting different NBX systems, by configuring each NBX system that is running SIP mode as a trusted SIP interface. A trusted SIP interface can include SIP proxies, SIP applications, SIP Gateways, AudioCodes Gateways, and any other 3rd party SIP device, including 3Com VCX IP Telephony systems.

- When you are using a 3108 Wireless Telephone you can move out of one subnet and into another and thereby get a different IP address (if DHCP is used). The telephone will then send a new registration request to the NBX system. After the NBX system validates the user, it registers the user with the new IP address and removes the previous IP address information, which allows the user to make and receive calls. However, if the telephone gets a new IP address *during a call*, the call will be disconnected. A well planned and carefully configured wireless network can alleviate this issue.

- SIP mode on an NBX means standard SIP support (RFC 3261) with no proprietary extensions to SIP. Third party telephone features that are dependent on non-standard SIP, will not work. An NBX system in SIP mode does not support secure SIP signaling or secure RTP. It does not support NAT, firewalls, or RTP relay. Communication is over UDP only.

SIP and the Dial Plan

The NBX dial plan comprises the rules that govern calling behaviours. Enabling SIP on an NBX system requires some new entries in the dial plan.

- The default dial plan includes an additional default entry called SIP Connection Port in the routing table. A SIP Connection Port identifies the route for a call going to a SIP gateway or other trusted device.

- When you add the first SIP device to the system using the NBX NetSet utility, the system prompts you for the creation of a default extension list. If you select that option, a new extension list is created and the extension of that device is added to the extension list. You can choose to manually add the extension list and add the new device to it. You must also then create a routing table entry in the dial plan associated with the extension list created for SIP devices.

- You must edit the dial plan to integrate the 3Com IP Messaging Server application and the 3Com Conference Server application with the NBX system. The NBX administrator must add an extension list to the dial plan to support routing of extensions to each external server.

- The optional NBX Dial Plan Editor application does not support making SIP related changes to an NBX dial plan.

SIP and Automatic Call Distribution

A SIP device can be a member of ACD group and it can act as an ACD agent but it cannot be a supervisor. ACD Delayed Announcements must be provided by the 3Com IP Messaging Service. The new Estimated Wait Time and In-Queue Exit announcements are not available when using SIP mode.

SIP Mode Supported Devices

3Com telephones that support SIP and RTP (see table), operate the same as they do in a traditional NBX environment. They support the full range of NBX telephone features except for internal paging and being limited to three-party conferences when using the NBX conferencing feature. SIP-only telephones (the 3108 Wireless Telephone and generic SIP telephones) can make and receive calls, use conference, transfer, and hold. Older NBX devices do not support SIP and RTP and become disabled if they are connected to an NBX system that is running in SIP mode.

This table shows the 3Com NBX devices that operate with an NBX system in SIP mode:

| NBX Device	Part Number
2102B/PE Business Phone	3C10226B/PE or 3C10228IRB/PE
1102B/PE Business Phone	3C10281B/PE
2101B/PE Basic Phone	3C10248B/PE
3100 Entry Phone	3C10399A
3101 and 3101SP Basic Phone	3C10401A, 3C10401SPKRA
3102 and 3102B Business Phone	3C10402A, 3C10402B
3103 Manager's Phone	3C10403A
3106C and 3107C Cordless Phones	3C3106 & 3C3107
3108 Wireless Telephone	3C10408A
pcXset Soft Telephone Client	3C10316 (single license) 3C10154 (site License)
1105 Attendant Console 3105 Attendant Console	3C10123A or 3C10124 3C10405A (When connected to a supported 3Com telephone)
1-port Analog Terminal Adapter	3C10400
V3000 Analog ports	3C10600A/B
V3000 BRI-ST ports	3C10601A
V3001R System ports	3C10602A 3C10603A
NBX 4-port Analog Terminal Card	3C10117C
NBX Analog Line Card	3C10114C
NBX T1 Digital Line Card	3C10116D
NBX E1 Digital Line Card	3C10165D
NBX Media Driver	3C10319
Polycom IP4000 Speakerphone	2200-06632-001

Generic SIP Telephone and NBX Features

Generic SIP telephones and 3108 Wireless Telephones support most NBX features through feature codes. Any feature code that must be activated while a call is in progress is not supported.

Licensing on an NBX System in SIP Mode

- A 3108 Wireless Telephone uses an NBX Group 1 license and one system device license.

- Each generic SIP phone uses one NBX Group 2 license and one system device license.

- Each 3Com telephone uses one Group license and one system device license.

- A third party voicemail system or the 3Com IP Messaging application requires an NBX third-party messaging license.

- A PSTN gateway requires one system device license per audio path trusted end point. SIP gateways, SIP proxies, and third-party SIP applications can be trusted devices. At initial configuration, each trusted end point must assign the maximum number of audio paths that it can have open concurrently. Each audio path, called a SIP Virtual Trunk, is tracked against the licensed system capacity device limit, up to 1500 devices. For example, if the trusted end point is configured for 30 audio paths, the 31st request receives a busy tone or is redirected to another dial plan route if one is configured and available.

- Multi-vendor SIP soft-trunks such as Cisco VIC Cards, VCX-to-NBX-to-VCX dial plans, and MCI SIP trunks, require one system device license per audio path trusted end point.

Updated NBX NetSet™ Utility
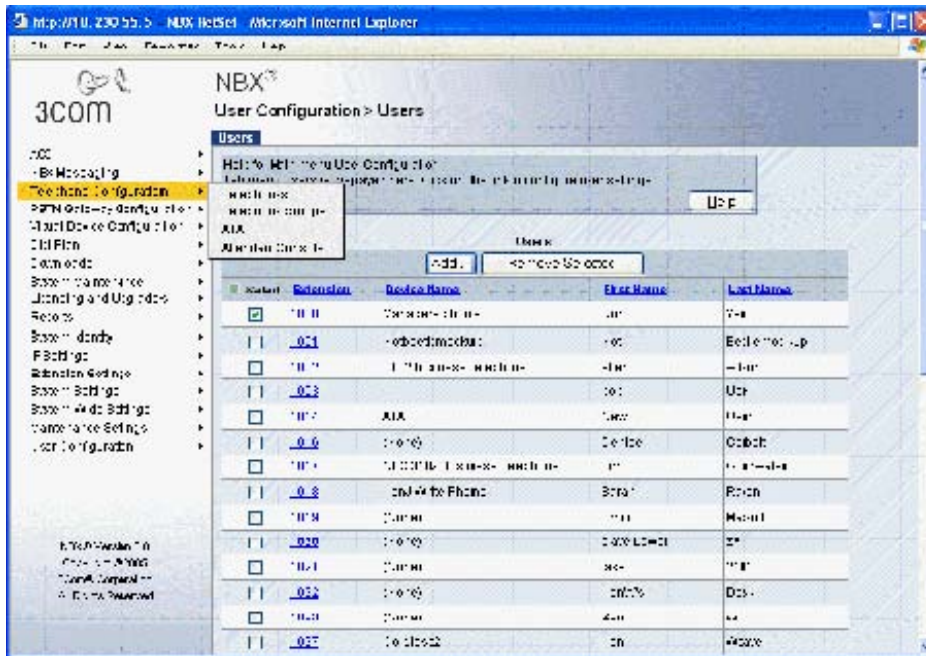
The user and administrator portals of the NBX NetSet utility have been redesigned for NBX R6.0.

Tasks have been reorganized and simplified to provide easier navigation and easier access to information

The NBX NetSet user portal interface has been localized. Users can view their personal settings in an interface that has been localized into US English, Latin Spanish, Brazilian Portuguese, German, French, and Italian. The NBX NetSet interface has also been designed to comply with the accessibility guidelines of Section 508 of the Americans with Disabilities Act.

Browser Requirements

The new NBX NetSet utility requires any of these browsers:

- Microsoft Internet Explorer 5.5 or higher

- Netscape Navigator 7.0 or higher

- Mozilla Firefox 1.0 or higher

Automatic Call Distribution (ACD) Enhancements

Automatic Call Distribution (ACD) enables call center operations by distributing calls to groups of agents based on specific criteria. Calling activity can be monitored and managed for best performance and customer service. NBX R6.0 extends the NBX ACD feature. R6.0 includes these ACD enhancements:

- **Least call count call distribution option** — When you employ this new call distribution option, the NBX system distributes calls to members of an ACD Group according to the number of calls handled by each agent. The agent who has handled the fewest calls, gets the next call.

- **Calling groups call distribution option** — When you employ this new call distribution option, a single call rings on all phones of the ACD Group until a member answers the call or the call times out and is routed to the group's call coverage. This option sends only a single call at a time from the ACD queue to the group.

- **Multiple group membership** — An agent with multiple skills can be a part of multiple ACD groups and receive a "fair" number of calls. For example, agent Sarah Raven is a member of CustomerGroup2, which employs Linear call routing, and CustomerGroup3, which employs Most Idle Agent routing. Sarah's call count is a total of the calls she receives from both groups, so her idle time accounts for calls that come from both groups. Ms. Raven receives an appropriate number of calls from customers regardless of which product they are calling about.

- **ACD Shifts** — ACD Shifts allow you to break down calling statistics into meaningful chunks. At the end of a shift, the calling statistics counters are reset. You can organizing calling statistics into these categories:

  - A 24 hour shift (always open). This shift is always in place.

  - A shift that matches any of the three NBX Business Hours settings, which also affect the Auto Attendant menus. A call to the ACD Group during operating hours is routed to the agents. A call that comes in outside of the operating hours hears a "closed" announcement and is then forwarded to call coverage.

  - One of 4 custom configurable shifts.

  - Dynamic or emergency shifts, which allow you to manually open one or more shifts.

- **Announcements** — In addition to Delayed Announcements, already a part of NBX ACD, NBX 6.0 enables you to record these new types of ACD announcements:

  - Estimated Wait Time

  - In-queue Exit

  - Group Closed

    If enabled, your Delayed Announcement is followed by the Estimated Wait Time, and then In-queue Exit announcement.

    The In-queue Exit announcement tells a caller who is waiting in the queue which digit to press to go immediately to call coverage.

    Group Closed announcements enable you to handle the end of day calling queue. For example, you close at 8pm. However, new calls come in at 7:59pm, and there are many calls left in the queue at the close time. No new calls will be added to the queue after 8 pm, but the calls in queue will be served (even after 8pm).

    A Group Closed announcement can also handle a "force closed" situation. For example, due to an emergency, all the agents are asked to leave (with or with out logging off). Any new caller will hear the close announcement while the calls already in queue will wait until time out period elapses, and then be forwarded to call coverage.

NOTE: If you are running your NBX system in SIP mode, the Estimated Wait Time and In-queue Exit announcements are not available.

- **Wrap-up Timer** — Wrap-up time allows an agent to take notes and perform administrative tasks after a recent call. The ACD administrator can enable the wrap-up timer and specify the wrap-up time duration (between 0 and 999 seconds). During the wrap-up time, new calls (except for personal calls and calling group calls) are not routed to the agent. A telephone button mapped to wrap-up mode remains lit during the wrap-up time. The agent can manually end the wrap-up period and be available for new calls at any time. Agents who need extra time can manually extend the wrap-up time.

- **Streaming data for external application integration** — ACD data can be streamed over a TCP socket and a client, such as the NBX ACD Desktop Statistics application, can connect to it and receive the data. The data stream includes detailed statistical data for all ACD groups and their agents. The refresh rate for the streaming data can be configured through the NBX NetSet utility. This feature is not supported on the NBX 100.

- **A new companion application, ACD Real Time Desktop Statistics** — The NBX ACD Desktop Statistics application is a Windows client that allows supervisors to monitor ACD activity in real time. For example, supervisors can monitor the number of callers waiting for an agent, how long they have been waiting, and how many have hung up. Call centers can adjust their staffing levels appropriately to meet customer expectations. NBX ACD Desktop Statistics is available at no charge through the Downloads page of the NBX NetSet utility and from the NBX Resource Pack disk.

User Button Mappings

The NBX administrator can now allow end users to configure button mappings on their own phones. The list of user button mappings is a subset of the entire list of button mappings available to the administrator.
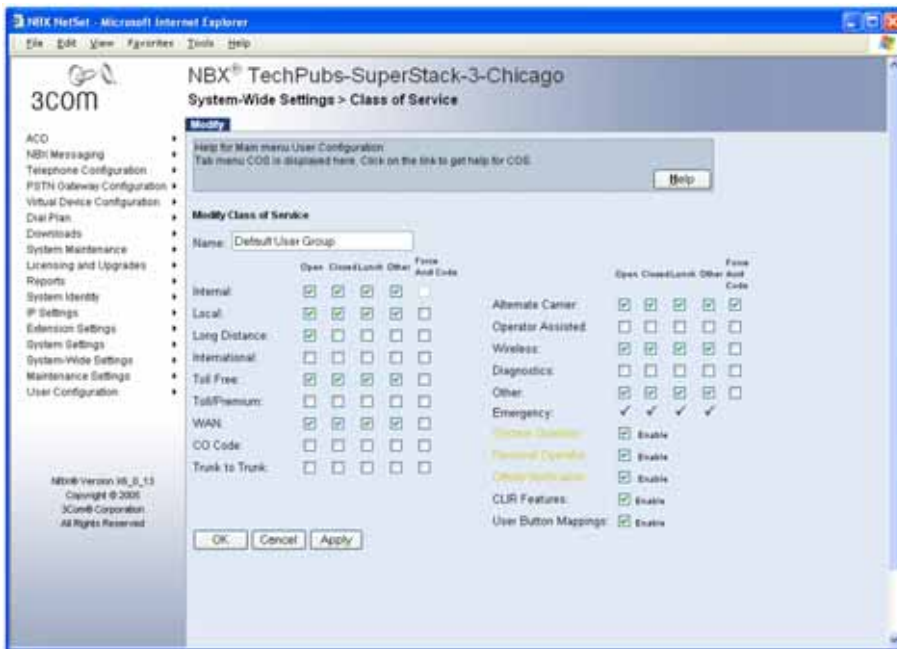
The NBX administrator enables user button mappings on the Class of Service page. If the administrator enables the User Button Mappings check box, any user who belongs to that Class of Service Group sees an extra tab, **Button Mapping**, in their Telephone Programming page when they log into the NBX NetSet utility.

The Button Mapping tab appears in the user's NetSet utility Telephone Programming page only if the NBX administrator has enabled the User Button Mappings option for the Class of Service. The Button Mapping page shows the user which buttons can be reprogrammed.

The end user and the administrator are on an equal standing when changing button mappings. That is, the change that was last made to the specific button mapping is the mapping that would be in effect, whether the administrator or the end user made the change.

Telephone button functions that are available for user remapping:

Feature name	Available for user remapping
Account codes	Y
Bridged Station Appearance	N
Call Forward Default All	Y
Call Forward Default Busy	Y
Call Forward Default No Answer	Y
Caller ID Restriction all	Y
Caller ID Restriction next	Y
Call Toggle	Y
Conference	Y
Conference Drop	Y
Default	Y
Directory	Y
Do Not Disturb	Y
Directed Call Pickup	N
Feature	Y
Flash	Y
FWD VMail	Y
Headset	Y
Hunt Groups login/out	Y

Feature name	Available for user remapping
Line/Extension	N
MWI For VM	Y
MWI To Phone Send	Y
MWI Cancel	Y
MWI Retrieve	Y
Other	Y
Park	Y
Pickup Group Extension ###	Y
Pickup Extension	N
Pickup Group	Y
Personal Speed Dial	Y
Redial	Y
Release	Y
System Speed Dial	Y
Supervisory Monitoring	N
Switch to DTMF	Y
System	N
System Open/Closed/Lunch/ Other	N
Transfer	Y
Transfer VMail	Y
Camp On	Y
Whisper	Y

NBX Licenses Backup Enhancement

New in R6.0 is the option for an administrator to include licenses in a system backup instead of performing a separate license backup operation.

SNMP

NBX R6.0 supports the Simple Network Management Protocol (SNMPv1, SNMPv2c, and SNMPv3) for remote fault notification and performance monitoring. You use the NBX NetSet utility to enable and disable SNMP, add authorized SNMP users and managers, and define their access level.

MIBs

The NBX system supports these public MIB's as read/only objects:

RFC 1155	RFC 1157	RFC 1215	RFC 1213	RFC 2573	RFC 2574
RFC 1901	RFC 1907	RFC 2571	RFC 2572	RFC 2575	RFC 2576

The system will also support private MIBs as read/only objects to show gateway and phone information.

SNMP Security

The security models supported are USM for SNMPv3 and the use of community strings for compatibility with versions of the standard before v3. VACM is the access control model that will be applied to both security models.

User-based Security Model (USM) — The USM of SNMPv3 provides these security features:

- Provides for verification that each received SNMP message has not been modified during its transmission through the network.

- Provides for verification of the identity of the user on whose behalf a received SNMP message claims to have been generated.

- Provides for detection of received SNMP messages, which request or contain management information, whose time of generation was not recent.

- Provides, when necessary, that the contents of each received SNMP message are protected from disclosure.

USM provides three levels of security on a per user basis:

- noAuthNoPriv: No authentication and no privacy, or plain-text communication (akin to SNMPv1)

- authNoPriv: Authentication provided by MD5 or SHA, but no encryption of data

- authPriv: Authentication with encryption of data by DES.

View-based Access Control Model (SNMPv1, SNMPv2c and SNMPv3) — The VACM model determines the access rights of a group that users belong to. Each group can be configured to have access to a sub-set view of the MIB, so that users belonging to that group can view only that sub-set of the MIB. A group defines the access rights afforded to all user Security Names belonging to that group.

Two groups are supported: the admin and the monitor group. The NBX administrator will by default be a member of the admin group.

Traps, Notifications, and Informs — In addition to receiving requests and sending responses to management applications (managers), agents also have the ability to send unsolicited messages to managers when they detect some significant event. An unsolicited message of this sort is called Trap (in SNMPv1) or Notification (in SNMPv2 and SNMPv3).

The NBX SNMP agent supports both Traps and Notifications in all three versions of SNMP. An Informs (confirmed Notification), on the other hand, is a Trap sent from the agent, with a request to the Manager to acknowledge the receipt of Trap. The NBX NetSet utility, where the manager IP address can be configured, enables you to configure the target entries.

Supervisory Monitoring

Supervisory Monitoring is a feature that is used primarily for ACD support. The Silent Monitor function of Supervisory Monitoring enables monitoring of calls that are routed through ACD Groups, Hunt Group, or TAPI Route Points. Monitoring may be done with or without an agent's knowledge. The Whisper function of Supervisory Monitoring enables a supervisor to speak to an agent without the customer's knowledge. The Barge-In function enables the supervisor to join a call and speak with both the agent and the customer. Announcement tones can be configured to let the agent and customer know if the supervisor is monitoring, whispering, or barging in.

NBX R6.0 includes these Supervisory Monitoring enhancements:

Monitoring of all types of calls — Incoming, outgoing, and non-ACD calls can be monitored. Anyone in the system can be monitored. Also, 3-party conference calls can be monitored. (The monitoring party counts as one of the parties in an NBX conference, which supports up to four parties.)

Simplified supervisory monitoring — A domain defines logical groupings of the agents who are required to be monitored by a specific set of people. An NBX 100 can support up to 49 domains and all other platforms can support up to 101 domains. Anyone who has a valid password can monitor domain members. The NBX Administrator creates supervisory monitoring domains that define the following information:

- The supervisory monitoring domain's unique name and password

- The types of calls that can be monitored (Incoming Group Only calls or All calls)

- The calling groups (ACD, Hunt Group, or TAPI Route Point) that can be monitored

- The agents (users) who can be monitored

- Announcement tones for Silent Monitor, Whisper, and Barge-In modes

Privacy List Domain — A special system domain called the Privacy List specifies users who cannot be monitored. In addition, only the NBX administrator can define users for the Privacy List domain. The administrator cannot add Hunt groups, ACDs, or TAPI Route Points as members to the privacy list.

Call Privacy feature — Call Privacy allows a user to prevent a call from being monitored. NBX telephone users can toggle Call Privacy on and off to block or accept supervisory monitoring on a call-by-call basis. In contrast, membership in the Privacy List domain set by the NBX Administrator ensures that all calls associated with this user cannot be monitored. If the NBX Administrator assigns a user to a CoS group that allows Call Privacy, the user can use Feature code 428 to prevent a current call from being monitored as follows:

- You can activate the Call Privacy feature before a call (for example, by going off-hook and dialing Feature code 428 and then dialing an internal or external call), or during a call (for example, by dialing Feature code 428 after answering an incoming call). If you activate Call Privacy while on a call that is being monitored, the monitoring session is ended. The telephone display panel shows "CALL PRIVACY ON" when this feature is activated.

- When an active Call Privacy session ends, (for example: you activate Call Privacy, initiate a call, and then exit the call) the Call Privacy settings are no longer applicable and the next call is open to monitoring.

Enhanced security — The NBX admin log is updated whenever any of these events occur:

- When the NBX administrator enables or disables supervisory monitoring system-wide.

- When a domain is added modified or deleted.

- When someone attempts to view domain reports in the NetSet utility using the wrong password.

- When a user attempts to monitor another user by activating feature code 425, and then and using a wrong password. (After the maximum password retries are exceeded.)

WhisperPage

The WhisperPage feature allows you to dial an NBX extension that is involved in an conversation with another person and speak to that person without the other party on the call being able to hear you. WhisperPage is typically used in the workplace by an assistant and manager. While a manager is on a call, an assistant can start a WhisperPage session to alert the manager of an important meeting or call. During the WhisperPage session, the assistant cannot hear the manager or the third party and the third party cannot hear the comments of the assistant.

If the manager is not on an active call when the assistant starts a WhisperPage session, a call is placed just as if the assistant dialed the manager's extension.

A typical WhisperPage session occurs as follows:

1. An assistant initiates a WhisperPage through feature code 426 or a programmed system access button depending on the type of telephone and how it is configured by the NBX administrator.

2. The manager might hear an alert tone announcing the WhisperPage request. The display panel on the manager's phone shows the caller ID of the assistant and the WhisperPage icon for 5 seconds, and then the display reverts back to the Caller ID information of the person the manager is speaking with. The manager also has a period of time, called the Decline Time, to refuse the WhisperPage. The NBX administrator can configure WhisperPage behavior by enabling or disabling the alert tone and specifying the Decline Time to be 0-9.9 seconds.

3. To allow the WhisperPage, the manager does nothing. When the Decline Time period expires, the assistant hears a tone that indicates that the WhisperPage session is active. The display panel on the assistant's phone displays "Whispering" and the manager's extension to indicate that the WhisperPage session is active, and the assistant can speak to the manager. The other party on the call does not hear the assistant's comments and the assistant cannot hear the manager or the person the manager is speaking to.

4. To refuse the WhisperPage, the manager can invoke the Do Not Disturb (DND) feature during the Decline Time. The assistant hears an error tone and the display panel on the assistant's phone shows a message that indicates that the WhisperPage was unsuccessful. The manager can also end an active WhisperPage session by invoking DND. If the manager invokes DND, that feature is active until the manager disables it.

5. The assistant hangs up to end the WhisperPage session.

Both the manager and the assistant in a WhisperPage session must be assigned to a NBX WhisperPage domain and have appropriate WhisperPage access privileges. Users can view their WhisperPage access privileges from within the NBX NetSet utility. The NBX Administrator defines these access privileges when creating the WhisperPage domains:

- Whether or not the WhisperPage alert tone is enabled

- The waiting time before an initiated WhisperPage session becomes active

- Users (listeners) to whom you can initiate a WhisperPage session

- Users (speakers) who can initiate a WhisperPage session with you

Camp On

Camp On allows you to queue a transferred call on to a destination extension that is already in use (meaning one or more (but not all) of its system appearance lines are in use). When the in use extension becomes available, the system automatically rings that extension. This capability is referred to as Camp On with Call Transfer.

For example, the user at extension 1001 calls the user at extension 1002, who then transfers the call to extension 1003. But the user at extension 1003 is on another call. (The display panel of the extension 1002 telephone shows "On Another Call.") So the user at extension 1002 invokes the Camp On feature, and then hangs up. Now, extension 1002 is on Hold for extension 1003. The user at extension 1003 hears a tone that indicates that a caller is camped on. As soon as extension 1003 is available, extension 1003 rings.

Note: In the example above, if extension 1003 was available and ringing (but did not answer) when the user at extension 1002 tried to transfer the call, upon invoking Camp On, the call would go to extension 1003 as a blind transfer instead of being queued.

Camp On also allows you to directly queue a call on to the destination extension when the destination extension is in use (as described above) or busy (meaning all of its system appearance lines are in use). When the in use or busy extension becomes available, the system automatically rings that extension. This capability is called Camp On Without Call Transfer or Direct Camp On.

For example, the user at extension 1001 calls the user at extension 1004, who determines that extension 1005 is busy and cannot take the call. So instead of transferring and dropping the call to the call coverage for extension 1005, extension 1004 invokes the (Direct) Camp On feature and then hangs up. The user at extension 1001 remains on hold for extension 1005. The user at extension 1005 hears a tone that indicates that a caller is camped on. As soon as extension 1005 is available, extension 1005 rings.

Note: In the example above, if extension 1005 was available and ringing when the user at extension 1004 invoked Camp On, the call would go to extension 1005 as a blind transfer instead of being queued.

While a call is camped on, the caller hears either Music On Hold or silence if no music is provided. The target extension becomes available when the user ends the current call or puts the current call on Hold. A system-wide Camp On Return Interval determines how long a caller can stay camped onto an extension. The default Camp On Return Interval is 180 seconds. The NBX administrator can configure it to be anything from 30 seconds to 10 minutes. If the Camp On Return Interval expires, the camped call is returned to the originator of the Camp On. For example extension 1001 calls extension 1002, and the call is then camped on to extension 1003 and extension 1002 hangs up. Extension 1003 stays busy. When the Camp On Return Interval expires, extension 1002 starts ringing. If the user at extension 1002 does not answer the call, the call goes to the call coverage for extension 1002.

You initiate a Camp On call through a Feature code or programmed system access button depending on the type of NBX telephone you have and how it is set up by the NBX administrator.

NBX 3100 Entry Telephones and analog telephones can use only the Direct Camp On capability when invoking Camp On.

Automatic Callback

Automatic Callback allows you to request a call back from a destination extension that is in use or unanswered. The NBX system attempts to connect you when the called party at that destination extension becomes available.

On a NBX telephone, the Automatic Callback feature is helpful when:

- The person you are calling is on another call and you want the system to generate a call back as soon as this person is available.

- The person you are calling does not answer the call and you want the system to generate a call back when this person is available.

You initiate an Automatic Callback through Feature code 469 or a programmed system access button depending on the type of NBX telephone you have and how it is set up by the NBX Administrator.

Key usage tips and limitations for Automatic Callback include:

- An Automatic Callback return interval timer, set by the NBX NetSet Administrator, determines the maximum amount of time you can wait for a call back. The range for this timer is 1 minute to 24 hours. The default is 12 hours.

- An extension can have up to five Automatic Callback requests assigned to it. Return calls are generated in the order that they were received.

- Events at the destination extension that generate a call back include:

  - Entering a feature code followed by an on-hook event

  - Invoking the Directory feature followed by an on-hook event

  - Going off-hook then on-hook

  - Using Feature + 111 to terminate a session

- You cannot initiate an Automatic Callback to:

  - An external number

  - An ACD extension

  - A Hunt Group extension

  - A TAPI Route Point extension

  - A Call Park extension

  - An extension receiving a transferred call

  - A Phantom Mailbox extension

Syslog

The Syslog protocol provides a transport mechanism that allows a device to send event notification messages across an IP network to a server that acts as an event message collector (the Syslog server). The NBX system uses the standard 3Com logging mechanism to log event messages from devices. You can use industry standard solutions to manage NBX system the same way you monitor other 3Com networking products.

Syslog uses the User Datagram Protocol (UDP) as its underlying transport layer mechanism. UDP port 514 is the standard Syslog port.

New File System

The underlying file system that supports NBX operations has been upgraded. All new NBX V3001 and V3001R systems with R6.0 or higher include the new file system. During a system upgrade operation, an existing NBX system that is running NBX 5.0 will continue to run the old file system. You can use the NBX NetSet utility to upgrade the file system or you can continue to run the old file system.

The new file system offers faster boot times after an unexpected shutdown because it does not need to run a file system check. It is also more versatile and easily upgradeable for improved support of future improvements to the NBX system software.

Periodic Timestamp on Console

The PTOC feature sends a timestamp to the NBX system console at an interval you set. If the system experiences a problem, the timestamp messages can provide you with an approximate time when the problem occurred.

Simple Network Time Protocol (SNTP)

The Simple Time Network Protocol (SNTP) feature provides an automated method of synchronizing the time and date of an NBX system with a central network time server. You can be assured that an NBX system's time is synchronized with other business applications. You can also use the SNTP feature to synchronize multiple NBX systems that are deployed across multiple sites. Enabling SNTP is optional so you can maintain time and date locally, if desired. You can choose either local configuration or SNTP but not both concurrently. SNTP is disabled by default.

Wideband Audio

Wideband audio extends the frequency range of call audio, which results in a more natural and intelligible conversation. Wideband audio allows users in digital end-to-end networks to experience speech quality that approaches a face-to-face communication.

Traditional PSTN audio, also known as narrowband audio, averages 200 – 3400 Hz. The Wideband audio range spans 50 – 7000Hz, which dramatically extends the range of the audio frequencies reproduced in a telephone conversation.

Wideband audio is available only for internal and VTL calls on these 3Com devices:

- 3102B Business Telephone 3C10402B

- 3103 Manager's Telephone 3C10403A

Codec Control

The NBX NetSet utility gives you increased control on how you manage the balance between voice quality and data compression by allowing you to prioritize how a connection chooses one of the various codecs available in the NBX system. You can prioritize by bandwidth or by voice quality system-wide and for Virtual Tie Line connections, and you can override the system wide setting for individual devices. Then, when a connection between two endpoints is being established, the system chooses the level of compression and bandwidth that most closely meets the capabilities of the devices and the priority you have established. The NBX NetSet screens below show the System Wide Audio Settings screen and the Custom Settings screen.
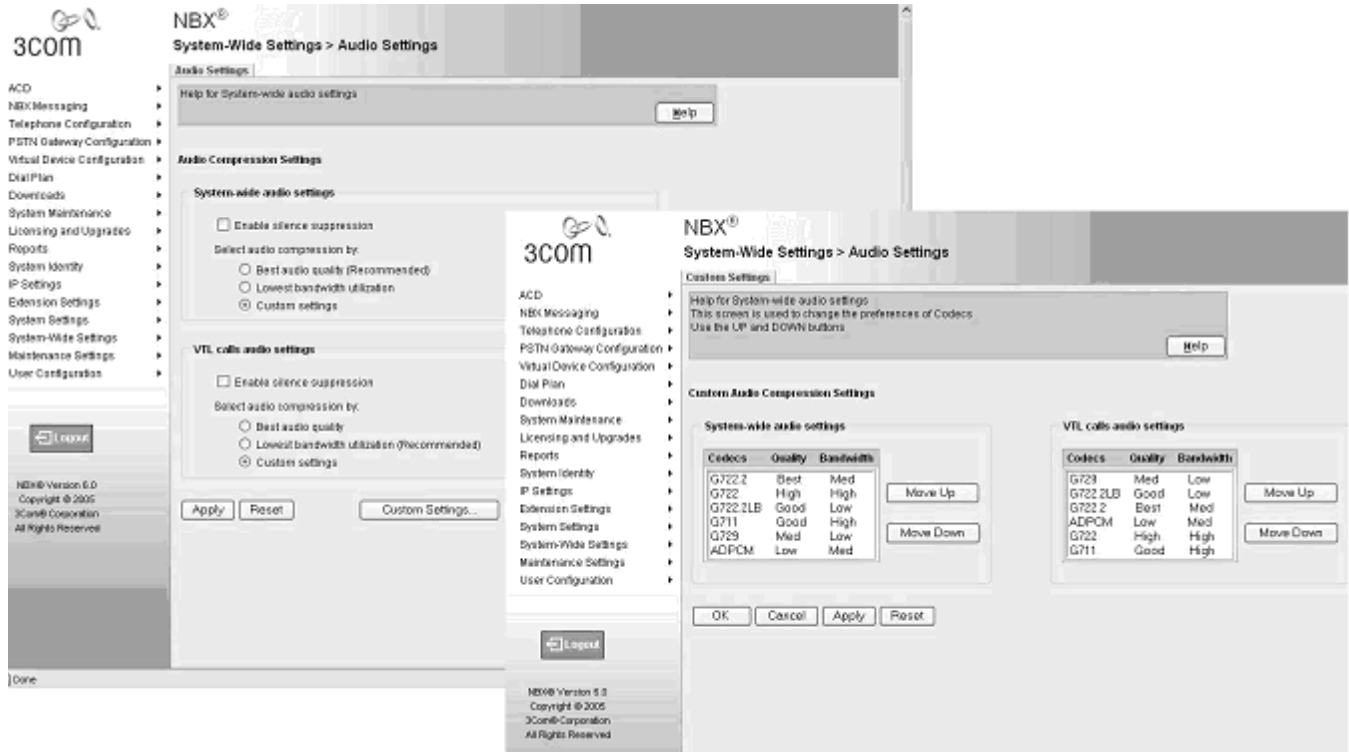
North America Daylight Saving Time Enhancements

Starting in 2007, Daylight Saving Time will be observed in the US from the second Sunday in March to the first Sunday in November. The NBX software will handle the new DST time changes. In addition, these new time zones will be added:

- Canada Eastern

- Canada Central

- Canada Mountain

- Canada Pacific

- Mexico Central

- Mexico Mountain

- Mexico Pacific

CSV File Import

This feature allows the NBX administrator to import and export select fields of user and device (telephones and ATAs) data in .CSV file format. You **must** be familiar with staging data in the CSV format before you import or export data in this fashion. Doing so incorrectly runs the risk of introducing and propagating corrupt data.

The information that can be imported or exported includes these user data fields:

- Extension
- First(Name)
- Last(Name)
- Title
- COS
- Location1
- Location2
- Department
- Telephone Group
- Device Type
- MAC Address
- Channel
- Receive Maintenance Alert
- Exclude from LCD
- Exclude from Name Directory

NBX Applications

3Com Convergence Applications Suite on NBX

The 3Com IP Messaging Server and the 3Com IP Conferencing Server can be integrated with an NBX system to extend system capabilities. The 3Com Convergence Applications can be used to provide system features when running the NBX system in SIP mode.

NBX pcXset Soft Telephone Client

The optional pcXset Soft Telephone Client, a Windows application, supports enhanced audio compression (G.729A/B) and the user interface has been enhanced.

Multi Site Backup Tool

The optional Multisite Backup tool, a Windows application, enables you to manage NBX backups. The tool provides a graphical interface to enable you to schedule and run NBX system backups either manually or automatically.

The Dial Plan Editor

This optional Windows application enables you to more easily manage the dial plan on an NBX system. The Dial Plan Editor does not support an NBX system running in SIP mode.

NBX Call Reports

NBX Call Reports has been updated to support the new features in NBX. In addition, the record format for the data downloaded from the NBX system to NBX Call reports has been moved to XML. To enable you to make the transition to the XML data, the system allows you to generate calling data in both the old CSV format and the new XML format for a period of time.

NBX ACD Desktop Statistics

The Automatic Call Distribution (ACD) feature in NBX supports basic call center operations. The NBX ACD Desktop Statistics application is a new Windows client that allows supervisors to monitor ACD activity in real time. For example, supervisors can monitor the number of callers waiting for an agent, how long they have been waiting, and how many have hung up. Call centers can adjust their staffing levels appropriately to meet customer expectations.

NBX ACD Desktop Statistics is available at no charge through the Downloads page of the NBX NetSet utility and from the NBX Resource Pack disk.

Other New and Changed Features

Section 508 Compliance

Section 508 of the Americans with Disabilities Act describes how products should be made accessible for people with disabilities. The user portal of the redesigned NBX NetSet interface meets section 508 guidelines as does the online Help and PDF based telephone user guides and quick reference guides.

NBX R6.0 adheres to the Section 508 guidelines by implementing these features:

- Support for calls between TTY users when using commonly used standard TTY signaling protocols

- TTY prompt support so that TTY users can interact with the VM/AA applications directly

- Large Fonts on telephone display panels

- Accessibility features in the NBX NetSet utility

- Simplified online Help for the NBX NetSet utility for compatibility with screen reader software

Digital Line Cards and DHCP Option 184

The 3C10116D T1 Digital Line Card provides T1and ISDN Primary Rate (PRI) connectivity for the NBX system. The 3C10165D E1 Digital Line Card provides E1and ISDN Primary Rate (PRI) connectivity. You can install these cards in a location that is remote from the NBX Network Call Processor. However, prior to NBX R6.0, you could not use the NBX Auto Discover feature to configure the cards unless they were on the same subnet as the Network Call Processor. You needed to configure the cards manually for remote operation. DHCP Option 184 allows you to use your DHCP server to provide the IP address of your Network Call Processor to digital line cards, which enables you to use the NBX Auto Discover feature to discover and configure an NBX digital line card over a routed network.

Digital Line Cards and IP on the Fly

3C10165D E1 and 3C10116D T1 Digital Line Cards now support the NBX IP on-the Fly feature.

Emergency 911 Setup

NBX systems have always supported Emergency 911 services. The *NBX Administrator's Guide* now includes a section that describes each of the areas within NBX administration that affect Emergency 911 functionality and explains issues NBX administrators may need to work out with their service providers.

Legacy Link Cards

3Com Legacy Link Cards enable you to use an existing network of Nortel Norstar, Meridian or analog telephones with an NBX system. The Legacy Link cards are now included in the NBX documentation.

NBX Telephony Service Provider (NBXTSP)

The 3Com NBXTSP provides Microsoft Windows TAPI applications with access to the NBX R6.0 new features: Automatic Call Distribution, Supervisory Monitoring, Call Privacy, WhisperPage, Camp On, and Automatic Callback. TAPI applications can also monitor calls to and from supported SIP telephones when the NBX system is configured to support those devices.