

HP-UX Mobile IPv6

Frequently Asked Questions



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1. What customers' problem does this product solve?

HP-UX Mobile IPv6 allows Mobile Nodes to change network attachment points—always remaining reachable and with no disruption in network connectivity—using a single, fixed IPv6 address for extended periods of time. By handling mobility at the IP layer, the only common layer for applications in IP networks, mobility is transparent to the layers above the IP layer.

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2. How does this product fit within customers' overall solution and topology?

This product actually consists of two Mobile IPv6 functions:

- ◆ Home Agent
- ◆ Correspondent Node

The **Home Agent** is for those customers who need to provide mobility service to some Mobile Nodes that administratively belong to them (e.g. ISP mobility service providers).

The **Correspondent Node** is for any IPv6 box owner who wants to provide MIPv6's route optimization support to Mobile Nodes that will communicate to the IPv6 box. For example, a web server that provides location-sensitive contents to the Mobile Nodes.

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3. What is the product relationship between IPv6 and MobileIPv6?

The HP-UX Mobile IPv6 design and implementation took advantage of the IPv6 framework in the following manner:

IPv6 items leveraged by Mobile IPv6:

- ◆ Large address space to eliminate the need for private addresses and NATing.
- ◆ Leverages the AH and ESP IPv6 extension headers for security.

IPv6 items expanded for Mobile IPv6:

- ◆ Added a new IPv6 extension header (Mobility Header) for MIPv6 signaling messages such as BU, BA, HoT, HoTi, CoT, CoTi, BRR, and BE.
- ◆ Expanded the IPv6 Destination Option to include a Home Address Option.
- ◆ Added a new Type 2 IPv6 Routing header for Route Optimization.
- ◆ Added additional ICMPv6 messages for Home Agent discovery request and reply, and Prefix solicitation and advertisement.
- ◆ Modified router advertisement messages to include Mobile IPv6 attributes.

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4. Where can I find this product: core HP-UX, quarterly application CD, software depot, or HP-UX OE?

Mobile IPv6 can be downloaded from software.hp.com as a part of the TOUR 2.0 bundle. Simply go to <http://software.hp.com> and enter 'TOUR 2.0' in the search box. In the search results, look for Transport Optional Upgrade Release 2.0 (TOUR 2.0).

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5. What is the cost?

This product is free of charge.

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6. Is it ported public domain software?

This is not a public-domain software product.

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7. Which HP-UX versions are supported?

Mobile IPv6 is supported on HP-UX 11i v1 (11.11) and 11i v2 (11.23) via the TOUR 2.0 release.

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8. What platforms are supported?

The Mobile IPv6 product is supported on any system running HP-UX 11i v1 (11.11)

Only IPF platforms are supported on HP-UX 11i v2 (11.23) at this time.

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9. What interfaces are supported? Any special configuration required?

Mobile IPv6 is an extension of IPv6. At least one IPv6 Ethernet interface will be supported on each system that will be a Home Agent. Correspondent Nodes can use any type of IPv6 network interface, but Home Agents must use Ethernet interfaces.

The only special configuration required is that an ANYCAST address needs to be configured on the loopback interface for Dynamic Home Agent Discovery support.

This procedure is documented in the HP-UX Mobile IPv6 Administrator's Guide at <http://docs.hp.com/hpux/netcom/index.html/#HP-UX%20Mobile%20IPv6>

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10. What are the supported standards?

- ◆ IETF Document: Mobility Support in IPv6
Note: This document is currently a draft and is expected to become an RFC soon.
- ◆ IETF Document: Using IPSec to Protect the Mobile IPv6 Signaling between the Mobile Nodes and Home Agents

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11. What are the product benefits?

Benefits of the Mobile IPv6 Protocol:

- ◆ It's tightly coupled with IPv6
- ◆ It uses many IPv6 features for mobility services
- ◆ It's based on learnings from MIPv4
- ◆ Mobility was a chief design concern for IPv6
- ◆ Mobility is transparent to all layers above IP layer
- ◆ Security considerations are a core part of the protocol

Benefits of HP-UX Mobile IPv6:

- ◆ It's free-of-charge
- ◆ It's designed for and supports MP scaling
- ◆ IPSec is also offered from HP and is also free-of-charge
- ◆ It has participated in conformance testing and multi-vendor verification at TAHI project forums and Connectathon
- ◆ HP's netl tracing tool will support Mobile IPv6 packet tracing
- ◆ TOUR 2.0 includes all Mobile IPv6 product dependencies
- ◆ It includes administrator tools like mip6admin and mip6config

For more information, refer to the HP-UX Mobile IPv6 Administrator's Guide or White Paper available at the following URL:

<http://docs.hp.com/hpux/netcom/index.html/#HP-UX%20Mobile%20IPv6>

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12. What are the product limitations?

Refer to the HP-UX MIPv6 A.01.00 Administrator's Guide at <http://docs.hp.com/hpux/netcom/index.html/#HP-UX%20Mobile%20IPv6> to see the default settings for HP-UX MIPv6.

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13. How do I find out which version I am using?

To find out which version of Mobile IPv6 you are using, run the following command at the HP-UX command prompt:

```
swlist -a revision -l product MobileIPv6
```

This will list Mobile IPv6's version. Note that "MobileIPv6" is the product tag for Mobile IPv6.

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14. Is there a migration path or tool for migrating from the previous version?

This is the first release of Mobile IPv6, therefore no migration tools are needed.

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15. What are the software dependencies?

Required patches are listed below in question 16.

TOUR (Transport Optional Upgrade Release) 2.0 for both HP-UX 11i v1 and v2 contains all other Mobile IPv6 product dependencies. These dependencies include the IPv6 Transport and Router Advertisement Daemon bundled with TOUR 2.0.

HP-UX Mobile IPv6 A.01.00 uses IPSec A.02 or later to authenticate the signaling between the Mobile Node and the Home Agent. HP-UX Mobile IPv6 provides interface support to enable/disable IPSec. HP-UX Mobile IPv6 A.01.00 does not require IPSec for installation.

Note: TOUR 2.0 does not include the required patches or IPSec software.

For more information about IPSec, refer to the IPSec Release Notes, available at: <http://docs.hp.com/hpux/internet/index.html#HP-UX%20IPSec>

For more information about TOUR2.0, refer to the TOUR 2.0 Release Notes, available at: <http://www.docs.hp.com/hpux/netcom/index.html>

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16. What patches do I need?

For HP-UX 11i v1 (B.11.11):

The following patches are required on all HP-UX 11 version 1.0 (B.11.11) systems running HP-UX Mobile IPv6 A.01.00. If available, you can use more recently released patches that supersede and may include any of the patches listed below. The patches listed below are the minimum required patches. You can download patches from the HP IT Resource Center patch database at <http://irtc.hp.com>:

- ◆ March 2003 Support Plus Patch Bundle (Quality Pack GOLDQPK11i) B11.11.0212.4
- ◆ PHCO_24287 - patch for syslogd(1m)
- ◆ PHNE_27796 - libnss_dns DNS backend patch
- ◆ PHNE_28895 - cumulative ARPA Transport patch.
- ◆ PHKL_29696 - STREAMS functionality patch required for PHNE_29825
- ◆ PHNE_29825 - STREAMS cumulative patch dependent on PHKL_29696
- ◆ PHCO_29287 - libc cumulative patch
- ◆ PHCO_29328 libc manpage cumulative patch

Note: HP-UX Mobile IPv6 A.01.00 requires PHNE_30450 to use the `nettl` and `netfmt` tools on HP-UX 11i v1 (B.11.11). HP-UX Mobile IPv6 A.01.00 does not require PHNE_30450 for installation.

For HP-UX 11i v2 (B.11.23):

HP-UX Mobile IPv6 A.01.00 does not require any patches for installation on HP-UX 11i version 2 (B.11.23). However, HP-UX Mobile IPv6 A.01.00 requires PHNE_30451 to use the `nettl` and `netfmt` tools on HP-UX 11i version 2 (B.11.23).

For the latest information regarding patch dependencies, please refer to the release notes for HP-UX Mobile IPv6, located at:

<http://docs.hp.com/hpux/netcom/index.html/#HP-UX%20Mobile%20IPv6>

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17. Is there a step-by-step installation guide?

Yes. The procedure for installing Mobile IPv6 is documented in detail in the *HP-UX Mobile IPv6 Administrator's Guide*. This document is available at:

<http://docs.hp.com/hpux/netcom/index.html/#HP-UX%20Mobile%20IPv6>

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18. Where can I find more information?

Additional information can be found in the following locations:

HP-UX Mobile IPv6 Documentation:

The following documents are available at

<http://docs.hp.com/hpux/netcom/index.html/#HP-UX%20Mobile%20IPv6>

- ♦ HP-UX Mobile IPv6 A.01.00 Administrator's Guide
- ♦ HP-UX Mobile IPv6 A.01.00 Release Notes
- ♦ Introducing HP-UX Mobile IPv6 (White Paper)

HP-UX Mobile IPv6 man pages:

- ♦ `mip6admin` describing the HP-UX Mobile IPv6 administration tool
- ♦ `mip6config` describing the HP-UX Mobile IPv6 configuration tool
- ♦ `mip6mod` describing the HP-UX Mobile IPv6 kernel module
- ♦ `mip6.conf` describing the HP-UX Mobile IPv6 configuration file

IETF Documentation:

The following documents are available at

<http://www.ietf.org/>

- ♦ Mobility Support in IPv6
- ♦ Using IPSec to Protect Mobile IPv6 Signaling between Mobile Nodes and Home Agents

Router Advertisement Daemon Documentation:

- TOUR 1.0 Release Notes, available at:

<http://docs.hp.com/hpux/pdf/5187-4158.pdf>

- HP-UX IPv6 Transport Administrator's Guide for TOUR 1.0, available at

<http://docs.hp.com/hpux/pdf/5187-4159.pdf>

HP-UX Router Advertisement Daemon man pages:

- ♦ `rtradvd(1m)` describing the router advertisement daemon for IPv6
- ♦ `rtradvd.conf(4)` describing the router advertisement daemon configuration file

Transport Optional Upgrade Release (TOUR) 2.0 Documentation:

TOUR 2.0 Release Notes, available at:

<http://www.docs.hp.com/hpux/netcom/index.html-IPv6>

IPv6 Documentation:

The following document is available at

<http://docs.hp.com/netcom/index.html#IPv6>

IPSEC Documentation:

The following document is available at
<http://docs.hp.com/hpux/internet/index.html#HP-UX%20IPSec>

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19. Does installing this product require a kernel rebuild?

Yes, installing Mobile IPv6 on HP-UX does require a kernel rebuild.

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20. How long does it take to install?

It should take less than 10 minutes to install Mobile IPv6 on your HP-UX 11i v1 (11.11) or 11i v2 (11.23) operating system, including the kernel rebuild and reboot.

Note: acquiring and installing required patches may take longer.

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21. Can I configure it from SAM and how?

HP-UX Mobile IPv6 cannot be configured with SAM, users must use the `mip6config` and `mip6admin` tools.

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22. How do I de-install this product?

Use the following command to de-install HP-UX Mobile IPv6:
`swremove -x autoreboot=true MobileIPv6`

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23. Under which directories is the product installed?

The files installed with the product are listed in the *Getting Started* chapter of the *HP-UX Mobile IPv6 Administrator's Guide* located at
<http://docs.hp.com/hpux/netcom/index.html/#HP-UX%20Mobile%20IPv6>

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24. What kernel parameters need to be configured? What parameters can be configured?

The necessary configuration steps are documented in detail in the *HP-UX Mobile IPv6 Administrator's Guide* located at <http://docs.hp.com/hpux/netcom/index.html/#HP-UX%20Mobile%20IPv6>

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25. Are there compatibility issues with the previous releases?

There are no compatibility issues with the previous releases, because this is the first release of Mobile IPv6.

HP-UX IPSec version A.20 or later is required to protect signaling and payload traffic with HP-UX Mobile IPv6. IPSec is not required for installation of Mobile IPv6.

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26. Are there interoperability issues? Which products does it work with?

HP participated in TAHI and Connectahon conformance and interoperability testing events using HP-UX Mobile IPv6 with other Mobile IPv6 vendors. There are no known interoperability issues.

For more information on conformance testing, refer to the TAHI website at <http://www.tahi.org/>.

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27. What is the performance impact of this product on my system?

Mobile IP is a signaling protocol between the Mobile Node and the Home Agent or Correspondent Node, used to track the location of Mobile Nodes. In a typical deployment scenario, about 5 - 10% of the system bandwidth will be spent on MIPv6 signaling.

However, IPSec is required on the Home Agent to protect signaling traffic as well as payload traffic. IPSec is very CPU intensive, and it is expected that there will be some performance impact caused by IPSec. Refer to the IPSec documentation for additional performance information..

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28. What diagnostic tools are available with this product?

The following diagnostic tools are available for Mobile IPv6:

- ♦ **mip6admin**
- ♦ **syslog**
- ♦ **netfmt**
- ♦ **nettl** Note: the following patches are required for Mobile IPv6 message-friendly formatting
 - ♦ 11i v1 (11.11): PHNE_30450
 - ♦ 11i v2 (11.23): PHNE_30451

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29. Where can I find error messages, log files, etc.

Error messages are logged via syslog, typically located in `var/adm/syslog/syslog.log`. Messages can be displayed by using the following command:

```
mip6admin logevents
```

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30. When troubleshooting Mobile IPv6, what data should be collected?

The following information should be collected prior to contacting HP for assistance in troubleshooting HP-UX Mobile IPv6:

configuration and settings, which can be obtained using the following commands:

```
mip6admin getconfiguration  
mip6admin debug
```

syslog events, which can be obtained using the following command:

```
mip6admin logevents
```

statistics, which can be obtained using the following command:

```
mip6admin statistics
```

If the above information is not sufficient to identify the root cause of the problem, it may also be necessary to collect the following additional information:

nettl trace and formatted output

binding cache info, which can be obtained using the following command:

```
mip6admin bindings
```

If the problem is associated with the Home Agent, the user may also need to collect the following information:

prefixes, which can be obtained using the following command:
`mip6admin prefixes`

rtradvd statistics, which can be obtained using the following command:
`mip6admin rtradvstatistics`

Home Agent lists, which can be obtained using the following command:
`mip6admin halist`

As an alternative, all the relevant information can be obtained using the following command:
`mip6admin report`

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31. What is the process to report a Mobile IPv6 problem to HP?

To report a problem with HP-UX Mobile IPv6, contact your Hewlett-Packard technical support representative.

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