



Recovering from Server or Network Failures

SkyTel WCTP 1.2 Beta Release 1

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1 Introduction

Version 1.1 of the WCTP specification did not offer a mechanism for alerting a carrier gateway that an enterprise server failure or network connectivity failure has been restored. Instead, the enterprise must rely upon the carrier gateway's retry algorithm to recover from the failure and send any pending or queued messages. This methodology does not insure a timely recovery that could take minutes or hours. Version 1.2 of WCTP will include an operation (**wctp-ReturnToSvc**) that an enterprise server may use to inform a gateway that a failure condition has been resolved and that the server is once again capable of receiving data. The following describes SkyTel's implementation of this operation. To use this operation, please refer to SkyTel's WCTP 1.2 Beta Release 1 DTD.

<http://www.skytel.com/protocols/dtds/wctp/wctp-v1r2sb1.dtd>

2 Return To Service Operation

The Return to Service operation (**wctp-ReturnToSvc**) consists of one element with no attributes. The value associated with the element is a WCTP address that does not include any entity components. By submitting the Return to Service Operation with the WCTP address of the enterprise server or an alias, the enterprise may indicate to the SkyTel gateway that it has recovered and is once again available. Because multiple server applications may be operating at any particular domain, and because not all of them necessarily fail or recover simultaneously, the Return to Service Operation has been specified to alert recovery for each application separately. This is accomplished by requiring the full transport address for each application.

[Protocol:][//]Domain[:Port][/Path]



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3 Use Case 1: Recovering From a Server Failure

The Acme Company may have the following applications running on its enterprise server.

Application	WCTP Transport Address
Acme Dispatch Application	wctp.acme.com/dispatch
Acme Alert Application	wctp.acme.com/alert
Acme Query Application	wctp.acme.com/query

If the Dispatch Application fails and eventually recovers, the enterprise would submit a Return To Service Operation for the Dispatch Application.

```
<?xml version="1.0"?>
<!DOCTYPE wctp-Operation
  SYSTEM "http://www.skytel.com/protocol/dtds/wctp/wctp-v1r2sb1.dtd">
<wctp-Operation wctpVersion="WCTP-DTD-V1R2">
  <wctp-ReturnToSvc>
    wctp.acme.com/dispatch
  </wctp-ReturnToSvc>
</wctp-Operation>
```

The carrier gateway would respond with the status in a **wctp-Confirmation** operation.

```
<?xml version="1.0"?>
<!DOCTYPE wctp-Operation
  SYSTEM "http://www.skytel.com/protocol/dtds/wctp/wctpskytel-v1r2b1.dtd">
<wctp-Operation wctpVersion=" WCTP-DTD-V1R2" wctpToken="12aA">
  <wctp-Confirmation>
    <wctp-Success>
      successCode="200"
      Return To Service received
    </wctp-Success>
  </wctp-Confirmation>
</wctp-Operation>
```



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4 Use Case 2: Recovering From Multiple Server Failures

If all of Acme's applications fail and eventually recover, the enterprise must submit a separate Return To Service Operation for each of the Applications

```
<?xml version="1.0"?>
<!DOCTYPE wctp-Operation
  SYSTEM "http://www.skytel.com/protocol/dtds/wctp/wctp-v1r2sb1.dtd">
<wctp-Operation wctpVersion="WCTP-DTD-V1R2">
  <wctp-ReturnToSvc>
    wctp.acme.com/dispatch
  </wctp-ReturnToSvc>
</wctp-Operation>
```

```
<?xml version="1.0"?>
<!DOCTYPE wctp-Operation
  SYSTEM "http://www.skytel.com/protocol/dtds/wctp/wctp-v1r2sb1.dtd">
<wctp-Operation wctpVersion="WCTP-DTD-V1R2">
  <wctp-ReturnToSvc>
    wctp.acme.com/alert
  </wctp-ReturnToSvc>
</wctp-Operation>
```

```
<?xml version="1.0"?>
<!DOCTYPE wctp-Operation
  SYSTEM "http://www.skytel.com/protocol/dtds/wctp/wctp-v1r2sb1.dtd">
<wctp-Operation wctpVersion="WCTP-DTD-V1R2">
  <wctp-ReturnToSvc>
    wctp.acme.com/query
  </wctp-ReturnToSvc>
</wctp-Operation>
```

Specifying the domain shared by the applications in a single Return to Service operation will not sufficiently alert the WCTP gateway to push messages to each of the applications. If given the domain only, the WCTP gateway will not assume that all ports and paths belonging to the specified domain have resumed operation.



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5 Use Case 3: Testing Network Connectivity

The Return To Service operation may also be used as a sanity check if no messages have been received at an enterprise server for an extended period of time. If a network connectivity issue has prevented the delivery of messages, a periodic ping may be useful to either detect or recover from a network connectivity failure. Developers, however, must use Return To Service in this way judiciously. Carriers will monitor Return To Service operations to detect denial of service attacks. Offending IP addresses may be blocked at the firewall or other actions may be taken against the attacker.